7009. e. 8.

A

SYSTEM

OF

NATURAL HISTORY,

ADAPTED FOR THE

INSTRUCTION OF YOUTH,

IN THE FORM OF A DIALOGUE.

Originally written in German, by Prof. RAFF *of Goettingen; now first translated into English.*

VOLUME II.

EDINBURGH:
PRINTED FOR G. MUDIE AND SON, SOUTH BRIDGE;
AND FOR J. JOHNSON, AND G. G. & J. ROBINSON, LONDON.

1796.

6 57
MAR

THE

ANIMAL KINGDOM.

BIRDS.

MASTER.

AH! now we come to our best friends; do we not?

PUPIL.

Yes; oh! the dear little creatures, which have such fine feathers, and fly so prettily!

M. This class we shall see fly in good earnest. These are not beetles, flies, butterflies, lizards, or flying fishes, which only flutter or plunge in the air. To cut the air with the rapidity of an arrow, to rise above the clouds and return quick as sight, to traverse in an instant, a quarter of the globe, in the middle regions of air that is FLYING. Let us first learn what a bird is; though it be not the rule to guess what a thing is, before seeing it.

P. But we have already seen birds!

M. Well! what is a bird then?

P. It is a small animal which has feathers, and flies; and besides it has only two feet, a bill, and a feathered tail.

M. That is all you have remarked; but till now you have only seen birds, without thinking of them; you have amused yourself with seeing them hop or fly, and not in learning what it was they then did. Now our entertainment is of a different kind; we shall delight ourselves with studying the nature of whatever is curious in the world, and of course, birds among the rest. But, to begin at the wrong end, when we have observed every thing, we shall find that birds have their blood red and warm; their body covered with feathers, two feathered wings, two eyes, and that they are oviparous.

P. Are there also large, large birds, very large, as there are such large fishes?

M. One cannot say that there are birds as large as a whale; there is, however, a prodigious difference between the largest and smallest, for instance, between the ostrich and the humming bird. The latter is not larger than a May bug, and the prettiest little animal in the world, in shape, size, colours, and smell. The other is as large as a camel, or as you would say, a man on horseback; and it also is a beautiful animal.

In general, it must be granted, that almost all birds have something beautiful in their shape; or at least they form the most beautiful class of animals. Some are white, some black, some gray, some red, some yellow, and of all the mixtures and shades imaginable. Look at the canary, the pigeon, the peacock, the goldfinch, the parrot; what exquisite plumage! Several birds, beside their rich robe of feathers, carry also on their heads charming tufts, or fleshy combs, as the cock, peacock, turkycock, &c. That robe so light and at the same time so close, defends the bird from cold, and supplies to it the place of a covering of hair, or wool. In flying, it makes use of every part of its body to asist its progress: look at a pigeon, or even a hen, you will see it stretch out its neck, and draw up its feet behind, close under its belly, to cut the air with the greater facility. All birds do not fly equally well; observe the ease of the sparrow, and the unweildiness of the goose; and the ostrich which has the advantage of size, does not fly at all--to speak properly; his wings, though furnished with long feathers, are too small for his weight, and all the advantage he derives from them, is, by their assistance, to run or leap with considerable ease. The bustard is another bird that does not fly, and the case is the same with some others.

Wings serve birds instead of arms or forefeet, and each wing consists of eleven bones, one of which belongs to the shoulder, two to the fore-arm, four to the hand, which has also a thumb and two fingers. Have you paid sufficient attention to the feathers of birds?

P. We have plucked a great many and have remarked two kinds of feathers; some are altogether fine; these are placed under and between the others. Oh! how soft they are!

M. These are called the down. Every feather consists of the barrel or quill, and the plume or vane; the quill is formed of a matter that is firm and light, partly hollow, with an opening at the extremity next the body, to receive the nutritious juices: what is found within the quill is called the pith. The quills of geese, swans, and some other birds answer for writing; the down of these and some other aquatick birds answers wall for filling beds; others, such as pigeons, hens, do not furnish a proper down for this purpose; their feathers are moist and heavy, and run into knots too readily. Designers and makers of musical instruments use the large quills of the raven.

Birds have eye-lids like quadrupeds, and can shut their eyes; they have also bones like *them*. Some live solely on grain; others only on flesh; and some are both frugivorous, and carnivorous occasionally. The Creator has also furnished them with organs fitted for seeking and laying hold of their different preys. Some have the bill sharp, others have it obtuse; some have it turned up, others crooked like a halbert; some have it large and flat, others hollow, like a spoon; some have bills very short, and others very long. But the bill is always of a substance nearly as hard as horn, that it may serve at once for the uses of teeth and hands, not merely to seize food in those situations pointed out by the supreme Disposer, but also to retain and break it.

Such as live on grain, are provided with a gizzard *, into which they take down a certain quantity, to be softened before it enter the stomach, where it must undergo digestion piecemeal: besides, this stomach, though small, is so hard and vigorous, that it can, like two millstones, break and pulverise the hardest grain, and even the little pebbles or small fragments of glass which birds now and then swallow along with them. Further, birds have no bladder, and consequently do not make water *; but their superfluous moisture is discharged with their dung.

---

* This is a mistake, The ingluoies or craw, is the first, and membranous stomach; where the grain is first macerated; to be afterwards triturated by the powerful action of the muscular stomach, or gizzard; and lastly, dissolved by the fluids which it furnishes.

They sleep almost all standing on their legs; sometimes on one, and with their head concealed under one of their wings. Often they are perched thus upon a slender branch, and yet the most violent wind will scarcely overset them; so well do they know to grapple and fix themselves with their talons.

In the greater number of birds, the legs are so situated as to support the body exactly in equilibrium. Some have them placed a little farther back; as ducks and geese, which run very ill, for this reason, but swim better; and so much the better still, for having their toes connected by means of a membrane, to make them fitter for the purpose of oars. The ordinary situation of the legs in birds is sufficiently exact in the center of gravity of the body. Most birds have four toes on the feet, three before, and one behind. Above these is found also in some birds what is called a spur. Many have two toes before, and as many behind. Some have only three in all, as the cassowary, bustard, &c. The ostrich is the only bird that has but two before and one behind. The toes are terminated by the claws which are sometimes sharp, sometimes obtuse, and sometimes indented, according to the need of each: for instance, the heron could not easily without such an instrument,

---

* As birds have no urinary bladder, it has been often alledged that they therefore do not make water. We discover in them, however, both kidneys and ureters for secreting and carrying off this fluid; which puts it beyond doubt that they make water. This is that whitish substance which is commonly found covering their fœces.

seize the frogs, toads, serpents, or eels, on which he subsists.

P. But are there many birds?

M. Judge if the number must not be great, since we reckon two thousand different species, which are all more or less numerous. Observe only the number of sparrows in a single district, even in a single village; and linnets, and starlings, &c.

P. But where do all these birds live then? are there some also in the other divisions of the globe, as Asia, Africa, and America. . . . . .

M. And in Cook's islands? . . . .

Most certainly, and it is even said that the most beautiful birds are found there; the prettiest parrots, for instance, are brought from thence. But many birds migrate from one quarter of the world to another: most of the swallows, for instance, leave us before winter, and pass over to Africa, not to return till spring. Niether larks, or quails, continue with us through the whole season: they all leave this for a warmer climate during winter; and some return in the spring, others only in summer. Many other species do the same.

P. And why do birds migrate in this manner?

M. Nearly for a reason similiar to that which causes shoals of fishes to change their situation, as you have seen; namely the want of food, and also cold.

For how could the fresh water bird subsist, when that element which furnishes his food, is rendered impenetrable, to him by the frost which has congealed it into ice? What would become of the bird that lives on insects, when the frost has destroyed them all, and the frozen earth is covered over with snow. They must, of course, remove and seek their food in some other quarter; unless they could pass this dreary season in a state of torpor and insensibility, without food, in ponds, or stagnant water, crevices of the earth, rocks, or trees; as many swallows and others actualy do.* These are the migrating birds, called in general, birds of passage: some perform the journey in large flocks; one flies a-head, the rest follow in good order, and the leader is superseded every two hours by one of the others.

P. But must not the birds be terribly fatigued with such long journeys?

M. Certainly, if they performed a migration at a single flight, they would be quite exhausted; but they have not strength. Therefore they rest

---

* What is here asserted of swallows and some other birds; namely, their immersion in water during winter, ought still, in our opinion, to be received with much caution. Many naturalists, indeed,—some too of the first name,—have given the sanction of their authority to the opinion. As many, however, and we believe of no less respectability, still reject it. Were we to presume to offer an opinion on a subject where naturalists of such eminence are so much divided, we would observe, that this very uncertainty that still remains respecting the fact, seems a strong argument against it. Were it really true, it must long since have been ascertained beyond all dispute, if not by accident, at least by the experiments that have been made on purpose. Analogy too, furnishes a strong argument to the same purpose. All amphibious animals, or such as have the power of living at pleasure, either in air or water, are provided with a peculiar mechanism of their sanguiferous system, varying indeed in different classes, but in all seeming to answer the same end; namely, to obviate those effects which must otherwise accrue to the animal, from the more difficult transmission of the blood through its pulmonary system, in that collapsed state of the lungs which necessarily attends long continued inspirations. When we discover, in the mechanism of this animal, no particular provision against those effects which would necessarily result from its submersion; and which we constantly find so carefully obviated in other animals of this class; we ought not, without the fullest proof to admit a solitary fact which is opposed by so many other facts accurately ascertained.

frequently; they have fixed stages, where they stop to eat and sleep; nor do they, during so long a passage, ever deviate from their course a single minute. Birds however are fortunate in being able to change so easily one country for another: quadrupeds are mostly confined to the same country; and it is only in some extraordinary emergency, that want and hunger force them sometimes far from their native soil. Some of these famished monsters have sometimes been observed to make their appearance in countries where they were unknown, and to commit the most dreadful depredations. We have had the misfortune to receive some of these terrible visits in France; and the peasastry were persuaded that they were animals possessed with devils, which would devour man and beast.

P. Can a bird travel a great way in an hour?

M. More than an horse can gallop in twelve. It is well known that a stag or a rein deer can run from seventy to eighty leagues in a day, and the latter even from fifty to sixty, dragging its sledge. But this falls prodigiously short of the distance through which a swallow can fly in the same space of time. A swallow can fly at the rate of thirty leagues an hour; and would take only ten or twelve days to pass from France into Africa. This is easily ascertained by means of one *correspondent* having it in charge to observe the day of the arrival of a flock of swallows, whose departure has been noted by *another* *.

---

* Adanson saw swallows arrive on the coast of Senegal on the month of October that were known to have left Europe on the first, or second of the same month (Voyage au Senegal). Pietro della Valle says, that in Persia the messenger-pigeon travels as far in a single day, as a man can go a-foot in six.

Henry.

The greatest part of birds subsist solely on land, and never live in water: but some others are more frequently in the water than on the land. These last are called water – fowls to distinguish them from such as prefer the land, and whose haunt is sometimes on the ground, sometimes on trees, sometimes in the woods, and sometimes on rocks or in holes. They are not restricted in their motions to flying; they can also walk, run, leap &c.

Aquatic birds swim easily by means of their webbed feet; and dive even without wetting their feathers; because they are at great pains to anoint them with a kind of oil, with which they are furnished from two glands situate near the tail; for water cannot penetrate any thing that has been rubbed with oil, or any unctuous matter.

Birds have their sight, and hearing very acute; they even excel in these respects all quadrupeds, and us still more. From the high regions of air, an eagle distinguishes in the plain or the wood, a hare in her form. From the top of a tree, the raven distinguishes a small worm crawling in the grass.

Now birds have need of a piercing sight to discover their prey, as well as to direct their rapid flight. Without this acuteness of sight they would be forced to go by bounds, in fear of hurting themselves every moment: then

---

Henry IX. King of France, when hunting near Fontainbleau, lost a tame falcon which was taken the next day in the island of Malta, and recognised by the ring which it wore: Now the distance may be four hundred leagues. Another falcon came in sixteen hours from Andalusia to the island of Teneriffe, a distance of about four hundred leagues. This was twenty five leagues in the hour, and and probably more, if the exact moment of its arrival had been known.

how could the eagle stoop to size the hare as she skips over the field, or through the thicket. A bird however does not see directly before him, but on the right and the left. Hence, to view objects placed directly before him, he commouly turns his head to a side.

P. But birds cannot run and fly and leap as soon as they leave the shell; for we have often observed them as we took them from their nests.

M. Not all; but some can, which are hatched with feathers; while the greater number have as few feathers at their hatch, as we have hairs at our birth. Their feathers sprout daily, and during the most of this period they are scarcely able to support themselves on their legs. Others do not fly readily, but the parents are forced to conduct them and train them a few minutes every day for the space of four or five weeks. At first they lead them but two or three paces from the nest; by and by they carry them to a greater distance; and at last venture them altogether in the middle regions of the air. Have not you seen a swallow teach her young to fly?

A period of sixteen, twenty, or at most twenty four weeks, is sufficient to complete their growth, and render them as large as the parents. During all this time, while the young are incapable of seeking their own nourishment, the parents provide for them. As soon as they leave the shell, the parents share between them the care of the family; one remains constantly with the young in the nest; andthe other roams incessantly in search of food which it brings to put within their bills.

Have you never seen those little animals fly away, with full bills? nevertheless, in the greater number of species, the male gives himself no trouble with the young: the whole charge of the brood and their subsistence is left to the poor female. We see an instance of this in the common cock, who takes no notice of what the hens do with the young. But it is true that the hen has only the trouble of conducting them; for as soon as chickens leave the shell, they are in a condition to follow her to seek their food, or to run at her call when she lets them know that she has found something for them.

In a word, birds, at least all the females, take the greae care of their young, and gaurd them from danger with the utmost solicitude during all the period while they stand in need of their assistance. It is a pleasure to percieve their joy when they see their whole brood thriving; it is painful to observe their grief, and uneasiness to to hear their plaints, and sighs, when an enemy has carried off one or more of their young.

P. But do they suffer any person that chuses, to carry off their young?

M. Just as your kind papa, or your dear mamma, would be well pleased if some person were to carry you off; if children were in danger of being carried off here, as in some remote and ill regulated countries! But what defence has the weak against the stronger who offers him an injury? How could a poor little bird defend itself from the claws of a huge bird of prey, or how would it guard against the snares of some wicked bird-catcher? Happy if they are so lucky as to save their own life: to cry, to moan, to flutter in the utmost anguish round the nest! this is the utmost that birds can do in such distress.

But when a bird perceives that some winged robber has a design on her or her young: she tries to give him the slip by every art imaginable. She flies on the right, she flies on the left, she rises, she sits down, she tries to drive him away by emitting a cadaverous smell, or by retaining allodorous effluvia, she puts her head in the clay, counterfeits death, suspends herself by the feet at night, that the owl may think her dead and not meddle with her: at last when she sees all her resources fail her, she defends herself with her bill, her claws, her wings, even to the very last breath.

There are some birds however that we seek to kill, because they are destructive; for instance birds of prey, and even others as magpies, starlings, &c. There are some also that are killed for the sake of their flesh; and as to these, we consult our own interest but ill in destroying their eggs or their young.

P. And do birds couple before they lay their eggs?

M. Certainly. But the males do not continue always with the females; the greater number leave them for ever after the laying season, or after the young are grown up. Soon after pairing, birds begin to construct their nest; which is formed with more or less art; sometimes of moss, of straw, of small branches, of hair, wool, silk, earth, and many other materials. The swallow constructs hers of mason. work and roofed above; that of the wag-tale resembles a bottle, close before, and with an opening at the side. Every species builds its nest in that situation which is most convenient for it, and almost constantly of the same kind of materials. Some chuse for their site the tops of trees, of towers, of rocks; others conceal their nests in the grass, in the earth, in briars, thickets, or hollow trees. Some voluntarily take up their residence near the habitations of men; the greater part, however, shun us and some even avoid the neighourhood of other birds. But all seek equally those situations which protect them from their enemies, and are convenient for food. The outside of the nest is constructed coarsely enough; but the inside is lined with down, hair, wool, moss; that the brood may be softly lodged.

P. But how do birds get all these things?

M. Upon trees, on the high roads, in the fields. How, many willows supply them with down? how many spiders and caterpillars, with a soft and delicate silk? And do not sheep leave much wool fixed on briars and bushes? But if by chance they be situated in some nigardly country, which furnishes them none of these things, do you know what they do, the dear little creatures? They tear off some of their own feathers, to supply a soft bed to their young.

P. Ah! the poor little creatures. But does that do them no injury?

M. Where their young are concerned, nothing does them an injury, nothing costs them dear, or at least, occassions them any regret, or seems to them a sacrifice. As soon as the nest is finished, the female begins to lay: and we observe even the common hen scrapes a hole in the earth, before she lays her egg. Some females lay many eggs, others but few, according as they have to hatch, or nourish their young for a longer or shorter space of time. After the laying is finished, which happens in spring, or the beginning of summer, the female thinks only of preserving her brood; and all the rest of the season is employed in hatching

ing and rearing her young, without seeking to lay any more eggs. For most birds hatch only once a-season; though others, as pigeons, common fowls, &c. hatch twice, and even the length of nine times. One may give a hen ten or fifteen eggs; she commonly hatches the whole; because the young are from the first moment capable of following her. But the pigeon only hatches two at once; because her young are not in the same situation, and she is under the necessity of feeding them with the bill near three weeks.

When, either by chance or design, a nest is destroyed, or the eggs broken, birds immediately build another, and lay more eggs. They have the courage to repeat this operation, even to the third or fourth time; but every time with less care and attention, for fear of being overtaken by the colds.

P. How long does a hen sit her eggs before they be all hatched?

M. Three weeks; a pigeon fifteen days; a sparrow the same; that depends on the size of the species; for instance, a goose sits a whole month, a swan five weeks. That giant of birds, the ostrich, covers hers only during the night; because as she lays her eggs on the sand, exposed to the warm rays of the sun, she cannot sit on them during the day. The cuckow is never at the trouble to hatch; but goes without ceremony and drops her egg in the nest of some other bird; for instance, of the wagtail or linnet, who are therefore obliged to hatch it along with their own *.

all

---

* The Egyptians and Chinese hatch the eggs, geese, and other birds, in ovens heated to a proper temperature. At Cairo

P. And are the eggs of all birds like those of the hen?

M. Not in respect of size; but within, they all consist of white and yolk. The yolk swims in the thin portion of the white, and is surrounded by the rest of the white which is thicker. On the top * of the yolk, one observes a round white speck, or cicatricula, which remains always a-top, however the egg be turned. Farther, to keep the yolk constantly in the middle of this liquor, it is fixed by two cords, which tie it down on each side. Lastly, We find four membranes in an egg, the first surrounds the yolk, the second the internal layer of the white, and the third the external, or rather the whole, in the same manner as the fourth, which is outermost, immediately within the shell, which is a calcareous substance.

P. Whence then comes the chicken which is produced from the egg?

M. It comes from that white speck, or cicatricula, which is always found at the top of the yolk. As soon as it is formed in the egg, it begins to consume the white, it then consumes the yolk also; and at the end of one and twenty days, being now fit to come out, it breaks a hole in the shell, bursts from its prison, and runs after its mother seeking something to peck. If we wished to observe how a chick increases in growth every day during inarbation, it might be easily done.

P.

Cairo in Egypt, one may often see seven or eight thousand eggs hatched at once. Reaumur tried the experiment, and found it succeed also in Europe, provided a heat 32 degrees of his thermometer, or 96 of Farenheit was given to the oven.

* The author is mistaken here. The external layer of the white is thin and fluid; while the internal is more thick and dense.

P. And how then, master?

M. But it would at least cost twenty eggs, which we should destroy. That number would need to be set, not under a single hen, but under three, or seven under each; and then one may be opened every day for twenty days: thus we should see exactly the whole progress of incubation.

P. A! yes, master, it is worth the while; do let us see it, if you please.

M. Willingly. Likewise, when a fowl is killed in the house, attend, and ask permission to examine it; you will observe a number of small yellow eggs within it, which are every one larger than another, rising by degrees, even to such as have already two layers of white: and lastly, when the hen is near laying, there will even be one or two which already have a shell

We may here make one general observation with respect to the plumage of birds. It is this, that in proportion to the coldness of any country the plumage, becomes more thick and downy. Thus the best feathers, and the finest eider down are procured from northern regions, and from the coasts of the frozen sea. The beautiful ducks from which the eider down is obtained, are natives of these regions. In warmer countries, the birds have fewer feathers. Thus in Africa, one sees many which are half naked.

P. By the way master, why do the feathers of most birds fall off in autumn?

M. I was just expecting you to put such a question. If you had remarked carefully, you would have seen that many cast their feathers before that period. The reason of it is, that the feathers are become too dry; and a new set grows before winter. This is what is called moulting. But moulting time is to the birds a period of sadness and silence. Their warbling ceases; they have a dejected ear; and so dangerous a time is this to them, that many of them die. They are commonly attacked, during this period, with a disease called the pip. In this disease, the tongue becomes so extremely hard and dry, especially towards the tip, that, besides the pain which they suffer, they are incapable of eating; so that if it does not get better in a few days, the poor creatures die of hunger *.

Such birds as do not die in the moulting time, or from age, or by chance, soon become the prey of men or other animals. Thus it is foolish to be afraid of birds becoming too numerous, in any district. If more of them should appear in one season than another, have but patience, and they will certainly disappear by degrees. Though there be some, which live thirty, eighty, and a hundred years, what does that signify? they die at last, and besides, these are such as multiply slowest. The eagle, for instance, how many eggs does she lay? One, or two, or at most three. This bird, it is said, will live above a hundred years, and so will a parrot.

From all this, it follows, that the idea of endeavouring to destroy and extirpate a species of birds from a country, for the sole reason that they would otherwise be too numerous, is very ill founded. But a few years ago the inhabitants

---

* Birds are also subject at this period to a tumor near the Anus, which if it does not soon break may occasion their death. They open it in canaries, or else they mix a little saffron in the water they give them to drink.

ants of North America tried the experiment to their cost. They were anxious to extirpate the crows from their country, and they succeeded so far as to leave almost none. A few years after, they discovered that a particular species of insect, very voracious and destructive to nutritious vegetables, had multipled so astonishingly, as to leave them scarcely any crop in the fields. They learned to regret the death of the crows, and were sensible of their utility. It must not be denied at the same time, that a great uumber of sparrows will do some damage in a country.

But still it would not be prudent to extirpate them; because they swallow a few grains of corn which was not intended for them. They render us an important service on the other hand, by freeing us of a swarm of caterpillars, scarabees, and other insects, which would do us infinitely more mischief by their extraordinary increase.

Thus, in balancing all the good and evil which may be occasioned us by those animals, with which the Creator has been pleased to surround us, ~~it~~ will be found, I believe, that they are in general rather useful than hurtful. We have only to watch with a little care, but never too anxiously, over our gardens and fields; we shall never be ruined by such creatures. Every thing must live, according to the proverb, beasts as well as men; nor need the good father of a family be uneasy at the little food which this wild family will cost him, in spite of his endeavours to diminish this article of expence.

We will leave misers then to repine for a few peas or beans which the sparrows have destroyed in their gardens, for a few cherries, or some such pitiful thing, which they may have carried away. We will satisfy ourselves with reflecting, that they consume but little; and besides, that the little creatures are not only of the most agreeable manners, but also of real utility.

P. And may one eat sparrows?

M. And why not? These birds eat nothing but good seeds and fruits; their flesh must therefore be wholesome and nourishing. It must be confessed, however, that their flesh has not such a fine flavour as that of larks or thrushes; but we eat many which are in the same predicament. The utility of birds in general cannot be called in question. In the first place both their flesh and their eggs, furnish us with a pleasant and substantial food; as one may be satisfied from pigeons, common fowls, geese, &c. Then their eggs too are become absolutely necessary in our kitchens. Besides, they devour, and rid our fields of carrion, which would taint them, and of insects which would plunder them. They supply us with materials for excellent beds; quills for writing; and many other things. And must we reckon for nothing, the pleasure which their very appearance affords us, their lively manners, their singing, their charming colours?

All birds have a kind of voice, a song, or a cry. Some, it is true, as the peacock and goose, are any thing but exquisite musicians: but many others, especially the males, when they warble their loves, or pay their addresses to the females, seem naturally to possess this bewitching art. How often do we share their joy, and listen to them with rapture!

Who has not been delighted at times with the exquisite song of the nightingale? He who has not, must either not be a man, or want ears.

As to the females, they sing but ill and seldom, or not at all. They answer the melodious gallantries of the males, only by short notes of refusal or consent: neither are they arrayed in such splendid robes as the males.

The names of birds are mostly taken either from their cry, their shape, their manners, or their native country, &c.

P. By the way, master, why do some birds speak like us?

M. Speak like us? . . . . . do we then speak like a parrot, magpie, a starling, or a black bird! It may be said, that we have succeeded in teaching some birds to imitate the inflexions of our voice; but that cannot with propriety be called speaking, much less speaking like us. The birds which possess this capacity, are such as are provided with a large thick tongue. And yet it is remarkable, that the ape, which of all others approaches nearest to the human figure in shape, and which posseses in the highest degree, the talent of imitation, has never either of itself, or with every instruction, been able to get that length.

Almost in every country, some one species of birds enjoys particular consideration, and often something more. In one the stork swallow enjoys this privilege, in another the swan.* At Cairo in Egypt, a species of vulture is held in the greatest estimation. This bird rids the lanes, the roads and the fields of carrion, which, but for these useful animals would be piled up in heaps. In this large city, the office of lieutenant of police, chief magistrate, or any thing similar, is quite unknown. So that every ass, or dog, horse or camel, which may chance to drop down dead any where, remains there, till the vulturs chuse to dispatch him, which by this important service render themselves very respectable.

---

* This is the ibis of the ancients, and is well known to have been considered by them as a sacred bird.

P. Are not birds divided into different classes, to distinguish them the better?

M. Exactly; your notions of method and arrangement are excellent. Thus; we shall do with them, as we did with the insects and fishes. We shall divide all birds into six classes.

The first class containing the birds of prey, such as the eagle, the owl, &c.

The second, the chattering birds, as the parrot, magpie, &c.

The third, the web-footed, or aquatick birds, as the goose, the swan, &c.

The fourth, marsh birds, as the stork, ostrich, &c.

The fifth, the gallenaceous, as the common poultry, and others of the same kind.

The sixth, shall be composed of the singing birds, as the nightingale, &c.

FIRST CLASS OF BIRDS.

We begin with the strongest and most formidable animals of the species, namely, the birds of prey; this class comprehends the genera of the eagle, falcon, vulture, lanner, and owl.

All these birds live solely on flesh, and mostly on living animals, birds or others, which they kill. All birds might indeed strictly speaking be called birds of prey; since there are none which do not pursue other living animals, especially insects of every kind, which they also kill and devour without mercy.

But the eagles, the falcons, thekites, the vultures, the lanners, the owls; these are the birds of worst repute, the plunderers which are not satisfied with worms and other insects, but which we daily charge with murders far more criminal in our eyes, the destruction, of many animals, which we would reserve to slaughter at our own pleasure.

They are distinguished by the following infallible marks. A hooked bill, strong and sharp; a large head, in which one discovers the strength necessary to render them masters of the stronger animals; legs short, but strong; and feet furnished with toes covered by a strong skin, and with claws hooked and extremely sharp.

All except the vulture, prefer a living prey, and despise carrion. But the vulture is indifferent about fresh meat, and prefers that which is tainted. Every thing which is received into the stomach of birds soon corrupts and becomes putrid * and thence proceeds the flavor, which renders their flesh so disagreeable that it cannot be eaten. Even the quills are useless.

P. And where do these nasty birds reside?

M. In those situations which are commonly the haunts of robbers; on the tops of trees, in antient ruins, in thick forests, likewise on the tops of old towers, in the hollows of trees or rocks; in places of difficult access, or, that are altogether inaccessible. Nevertheless people are hardy enough, at the risk of their lives to seek their nests, scramble up to them, and carry away their food, such as geese, rabbits, hares, lambs, kids, &c.

---

* The experiments of Spalanzani prove the direct contrary of this. From these it appears that in this class of animals, the gasric fluid has not only the power of resisting putrifaction, but is also capable of correcting it, after it has taken place. A piece of tainted meat after being immersed sometime in this fluid, was found to lose its putrid smell, and to taste sweet.

P. Is it possible! but how do they find all these in such places?

M. They do not find them there, they carry them thither thro' the air in their claws. The eagle and large falcons have sufficient strength for this, and when once they pounce an animal, it with difficulty escapes from their clutches. They frequentyly attack animals much larger and stronger than themselves, and with such rapidity and vigour, that they get the better of them. They begin with digging out the eyes of the animal which they have seized; then they suck its blood, and afterwards carry it off perhaps still living, either to to their airy, or some safe place where they may devour it at leasure. Sheep, pigs, stags or fawns they seize whole; and if they cannot carry off either an ox or a horse, at least they kill them, and carry off considerable portions When they have eaglets, they bring them only small living animals to teach them betimes to kill and tear their prey.

P. Ah heavens! that makes me afraid. These are terrible birds! do they never any injury to men?

M. Very seldom; nevertheless there are some instances of it. They have been seen to transport through the air, children of ten or twelve years of age, and even to attack men

P. But these eagles and vultures must be very large then?

M.

M. Almost as large as a man; and the extent of their wings, when expanded out is from ten to twelve feet. Some are even much larger, but these are rare. They have the tongue and the lower part of the bill hollowed out into a gutter, that they may drink with more ease the blood of their unfortunate victims: for it is said that this is their only drink, and that an eagle never uses water. When they find oil, however, they drink it readily.

P Are there many birds of prey?

M. Happily there are not; not even near so many as there are of the carnivorous quadrupeds which are in reality much less dangerous. They multiply slowly; the largest species lay only two or three eggs at most in the season; and the rest four or five. They have another peculiarity which distinguishes them also from all other birds; the females are more beautiful, and larger than the males. They construct their nests of branches and dried herbs.

THE EAGLE.

LET us begin with the eagle, who has been reckoned from time immemorial the king of birds. If strength and ſize, and a thirst for murder and rapine, be the characteristics of kings, it must be acknowledged that the eagle has a right to this honourable distinction. There are several species of eagles, the large and the small, the black, the gray, the marble. All of them live by rapine and murder; all of them inhabit the summits of rocks and trees of the lofty forest. But the king of all these eagles is the golden eagle, or great eagle, or royal eagle: next to him is the common black eagle, and lastly,

lastly the small marbled eagle. Then there are also large and small sea eagles, and ernes, some black and others spotted.

The royal or golden eagle inhabits the mountains of Switzerland, of Spain, of France, and several other countries of Europe. It is also seen in Asia and Africa, though seldom. The female lays only two eggs, but she is not possessed of the same tenderness for her young that other females have for theirs. If by chance she be in want of food, she either drives them from the nest before they are in a condition to fly, or she even devours them.

This eagle, whose ruling instinct is rapine and murder, rises to a prodigious height in the air, that it may discover afar some suitable prey. It has like all the rest of the species, so piercing a sight, that, at this astonishing distance, it distinguishes a bird perched on a bush, or a hare in her form. It despises the weak, however, and attacks only the large animals; resembling in this particular the lion, who will not take the trouble to catch mice and moles. The royal eagle beholds with disdain ravens and crows, and leaves them to some weaker enemy, such as the smaller eagles, the falcons, the kites. But if these small birds are foolish enough to plague him too much, he sometimes punishes them with death. His favourite prey is a well fed mutton, a good hare, a goat, or some large bird. He seizes them so opportunely, and darts on them with such rapidity, and so unexpectedly, as to leave them no possibility of defence. And should they even bite the legs of the murderer, he is scarcely sensible of the puny attempt, because his legs are cloathed with strong feathers to the very pounces.

The great eagle never becomes tame or familiar. So fond is he of a free and savage life, that if he meet with another eagle, or any bird of prey in his neighbourhood, he drives them to a distance; so little inclination has he for society. He will not even see his own offspring, nor must one of them think to appear within his circuit, not even on a visit to him.

This eagle, when he escapes the dangers of a hostile life, lives a whole century or beyond it; but in proportion as he grows old, his strength fails. His bill has no longer the same vigour, nor his talons the same force, so that, being unable to procure better subsistence, he is forced, in his old age, instead of his former royal meat, to live on serpents and lizards.

The common black eagle is much smaller than the golden eagle; inhabits Europe and North America, where he lives on hares, birds, fishes, serpents. He resides on the tops of lofty trees, situate on the margin of rivers, and there hatches every year two or three young, which he takes care of, till they can shift for themselves; for which purpose he trains them assiduously to the chace. (Table IX. fig. 3.)

The small spotted eagle lives on ducks and other small birds, serpents and rats. He is a little more than two feet in length, and his wings extend nearly four. He is found in Europe, Asia, and Africa.

The sea eagles, both large and small, or ernes, have the legs naked, the tail white, the plumage black and white. They inhabit the forests of the northern regions, and live on birds and fish. Like the great eagle, they often also drive their young from the nest, before they can either well fly, or are capable of providing for themselves.

P. But do birds of prey also eat the feathers and the hair, along with the animal which they take?

M. Yes, often, especially the larger kinds; but the small kinds commonly pluck a bird before they eat it, and separate the flesh from the skin and the down of a hare. In the larger species, which swallow the whole, the feathers and skin, with the hair or down, are collected in the stomach, and brought up daily in the form of balls.

THE FALCONS.

THEY are much smaller than the eagles, and are found in every quarter of the globe. The largest and most beautiful are of a grayish ash colour, and about the size of a large common cock.

The other species are white, black, or red, or brown, or spotted, and are not larger than a starling. At fig. 3. Plate X. is a pretty large falcon. They frequent, like the eagles, wild and high situations, the better to discover at a distance their prey, which is, according to their strength and size, sometimes a hare or a rabbit, or a rat, sometimes a hen, a goose, a duck, a pie, a crow, a black bird, a starling, a lark, and other species of birds, larger even than themselves, but incapable to defend themselves against them. They seize them in the same manner as the eagles do: they begin with tearing out the eyes of the animal, then they drink its blood, and afterwards fall on the flesh.

P. Do they hatch many young the falcons?

I am not so much afraid of them as the large eagles.

M. They also multiply rather faster. The females lay every year four or five eggs, and both father and mother take charge of the young till they are capable of providing for their own subsistence. As they are not so terrible as the eagles, we have succeeded in employing them for our entertainment.

P. How then, Master ?

M. Have you never been at the chace ?

P. Oh no! not yet; but I have observed when papa went to it, and the gamekeeper.

M. Well! what did you ſee ?

P. They took guns, bags. . . . . and then I once fired a gun.

M. And was that all ? did they set off in that way, without any thing else ?

P. But . . . . I saw nothing more; they went just in that very way with their dogs ?

M. And for what purpose were the dogs ?

P. To run after the hares and catch them.

M. After the hares only ? and did they not run after the birds too ?

P. Oh! but dogs have not wings to fly like birds.

M. True, so that in hunting birds, dogs are only useful to find, and put them up, and one must either shoot them on the wing, or else take them while sitting, when we see them before they rise. But one must be very dextrous to shoot birds flying, and often they get too far away before one is ready to fire.

P. Ah! if one had dogs too that could fly, to pursue them, that would be fine; would it not?

M. And do you believe that they have not such ?

P. My father at least has none of them

M. The truth is, every body is not allowed to keep them. Kings and princes have reserved falcon-hunting to themselves; none but they keep falcons, falconers, and falconries.

P. Ah! then it is the falcon that is this flying dog?

M. Exactly; but it takes much pains, trouble, skill, and attention, as well as time, to train and tame him, before this wild bird can be rendered tractable enough to fly at command, to catch other birds that are weaker, in the air, or upon trees, and to bring them back at his master's call. It is even trained to take rabbits, hares, stags, wild boars, wolves, and other large animals.

P. And which it likewise brings alive?

M. No; but it is taught to seize these animals by the head, whilst they are running with all their force, and to dig out their eyes; after which they are easily taken.

P. And how do people contrive to train falcons so well?

M. In the first place, they endeavour to take them whilst very young, even in the nest, and then they are called *ninny-falcons*, or shortly after they have left it, and then they arecalled *hagard-falcons*, because they are wilder and more difficult to tame. When one is taken, it is tied, and suspended in this situation in a frame in the air, and it is prevented from sleeping for three or four days and nights successively, till sufficiently broken and overpowered with fatigue, it thus loses much of its savage wildness. It is next made to fast for some days, and, when sufficiently hungry a pigeon or a pullet is presented to it, on which it instantly darts, but the prey is immediately withdrawn, nor is it suffered to taste a morsel, till it become docile and obedient.

At last, when nearly properly tamed, it is taught to distinguish those animals which it is destined to chase, according as they are feathered or furred game ; and this is done by means of a lure, which is the figure of a bird or a beast upon which the falcon is exercised. After this it is carried to the chace, but at first always with a long pack-thread, by means of which it is allowed to fly from tree to tree, or from house to house, and to catch some pigeon or other bird.

When the falconer has continued this exercise for some weeks, and when he thinks the bird sure, he tries him in the open fields; to which he carries him on his hand, untied, but always hoodwinked, and with bells at his feet. When the dogs have pointed, or raised the game that is wished, his eyes are uncovered, and he instantly springs, raises himself in the air, darts upon it, and brings it, or, if it be a large animal, digs out its eyes.

P. And does the falcon always return when called, and when he has seized his prey ?

M. Ah ! truly more than one fly off, when they find themselves at liberty, and forget to return into captivity, without thinking on all the money that had been paid for instructing as well purchasing them.

P. Are falcons so dear then ?

M. A well trained falcon costs commonly nearly a hundred crowns. The king of France has many of them, and every year receives several in a present ; for instance, the grand-master of Malta sends him twelve every year, by a knight, who receives a present of a thousand crowns. They are generally white, but these falcons of the island of Malta, as also those of Africa, come all, as is said, from cold countries, as Iceland, Russia, which are the true native countries of falcons, and other birds of prey.

THE SPARROW-HAWK.

THIS bird of prey, which is represented in Plate IX. fig. 16, has a great resemblance to the falcons and other birds of prey, but is smaller. It is also more common, and is sometimes taken by boys when seeking for the nests of other birds: they feed it with flesh, or with other birds, which it is not very fond of. It is likewise trained to the chace, but it is more whimſical than the falcon.

THE KITE.

THIS bird is about the size of a falcon, mostly white, builds upon trees, in small woods, and catches young hares, young rabbits, partridges, quails, &c. It does not pursue its prey on the wing, but watches, and remains constantly perched till it see a hare or some other animal pass, on which it darts as it passes. The kite is a great destroyer of bird's nests; he seeks for them eagerly, to suck the eggs or devour the young.

There is a species of kite which eats wasps, honey, bees, caterpillars, and other insects; and and another which watches fishes in ponds and in rivers, and darts upon them like an arrow whenever they come near the surface of the water.

In France, there is one distinguished by the name of the royal kite, because formerly kings and princes amused themselves by fighting it with the sparrow-hawk, which in reality puts it to flight; though much less than itself. There, is another called the black kite, which is a bird of passage. The royal kite is very common in Auvergne, Dauphiny, and other hilly provinces of the kingdom.

THE VULTURE.

THIS class is not less voracious than that of the eagles and the falcons, but does not diſdain, like them, carrion, even the most tainted. The vulture scarcely ever attacks living animals but for want of dead ones: and as it is very large and strong, it is also very dangerous, so much the more so too, as two or three of them frequently unite to attack large quadrupeds, as oxen and such like. As to hares, rabbits, foxes, lambs, sheep, even calves and goats, these are to them but a trifle. Vultures devour their prey entirely, even the skin and the bones, and leave nothing. They can endure hunger for ten and even twenty whole days, but they are reduced to this situation the seldomer, as nothing comes wrong to them, serpent, lizard, frog, toad, even the excrements of animals.

Vultures have the plumage grey, brown, or spotted, the head bald, or without feathers, and the neck almost the same. The feathers on the throat and under the wings are as soft as down. Neither their bill nor their claws are so crooked as the eagle's, and are shorter than his. They are in general about the size of a falcon, but there are a large species that exceed the largest eagles, and are from 18 to 20 feet between the tips of the expanded wings. They build their nests and commonly frequent the highest trees and rocks, like the eagles, but are more afraid of cold, and more common in warm countries, as in Egypt and Arabia. The large vultures lay only one egg or two annually, and it is fortunate for us; for, if these monstrous birds were more prolific, they would soon destroy all the cattle, and not even spare ourselves. There are some vultures large, others small, and some of a middling size.

The largest of all the vultures, and even of all birds of prey, is the condur; it easily carries off a sheep through the air, and when two or three fall upon an ox, it is over with him. One digs out his eyes, another sucks his blood, a third opens his belly, and tears out his entrails, which he devours. They next make a lodgement in his belly, and continue to devour his flesh, till nothing remains but the skin and bones; and what is remarkable is, that it is in vain to approach them whilst eager on their prey, they give themselves no uneasiness, and allow spectators to take a lesson on anatomy from them. They are still sometimes seen to make their appearance in the mountains of Switzerland, notwithstanding the pains that have been taken to destroy them.

The king of vultures is the most beautiful of all these: it is about the size of an eagle, with the head bald, and the neck the same, with a ruff below, composed of long grey feathers. The breast is of a sallow colour, the back and the wings of a reddish white, the bill, the neck, the legs, and the toes, are red. It is a native of South America. It has likewise been called the monk-vulture, because its ruff is large enough to conceal its neck and part of its head, which then looks as if covered with a cowl. See Plate IV, fig. 5.

The hare vulture is one of the middle-sized species, it is of the size of a swan, and has spotted plumage. It kills hares, deer, lambs, marmottes, and has even been seen carry off very young children. Thus, in Switzerland, where this bird is common, the shepherds tie their children to trees, when they have them with them on the mountains, where they feed their flocks, that they may not be so easily carried off.

The carrion-vulture or small vulture, (Plate X. fig. 16). has the plumage white, spotted with black. It is not larger than a goose, and is very frequent in Egypt, where numerous flocks of them are seen devouring carcases and all kinds of putrid flesh, of which they are much fonder than of fresh meat: the more putrid it is, the fonder they are of it, and they eat up every thing, even the excrements.

P. Fy ! filthy animals ; it makes me sick !

M. The poor chimney-sweepers, who get themselves all bedaubed with soot in cleaning our chimnies, are not very agreeable either ; they render us service, however, and it would be so much the more unjust to injure them, as the nature of the service is more disgusting even than that of cleaning our privies. Thus that species of vulture which disgusts us by its relish for carrion and excrements, is the only one that is of any real service to us ; for, without it, especially in those countries where it is most frequent, the air would be infected by the number of carcases, because there, people are not at the pains to bury them, and men could not subsist.

P.

P. But why do they not remove the carcases?

M. In truth that would be too much trouble for the Egyptians; if an horse, an ass, an ox, or a cat, dies on the middle of the street, he is suffered to remain on the very spot where he fell, and they take care not to meddle with him. This at least is the custom in Cairo (Grand Cairo), which is the capital of Egypt. Thus, if they had not dogs and vultures to clean the streets, a person would not be able to breathe there, nor frequently to pass along; for as the country is warmer than ours, putrefaction takes place more speedily. Thus the inhabitants have a great respect for vultures and dogs. These last animals, however are not admitted into their houses; the Mahometan law declares them impure; and when the inhabitants of Cairo meet one on the road, they run away from him as we would do, if he was mad. But, in return, the streets are full of dogs nearly of the size of our hares, almost smooth and bare, spotted black and white, which are of no use either as house-dogs or for the chase, but which, like the vultures, are sacred animals and cherished solely because they eat carrion. People are not only not permitted to kill them, they must likewise furnish them with food, fresh meat, when the animals can find no other, and they supply them with straw in certain places where they go to lie. They likewise build them separate huts or kennels to serve them for retreats in the inclement season. Almost every day some oxen are killed, solely for these animals, and their flesh distributed morning and evening at a place where they do not fail to attend, as well as the vultures. In this same city, as well as several others Mahometan cities, it is customary for the wealthy citizens to bequeath at their death a sum of money to support this distribution. And in reality, though there die annually at Cairo, at least, a thousand asses, horses, and camels, this quantity of carcases is far from being sufficient for the number of dogs and vultures that are found there. They are extremely multiplied both in the city and suburbs; and this is the less opposed because they likewise render the community another important service, by ridding the fields of the fishes, serpents, and lizards, that are left there by the annual overflow of the Nile, and would produce an unsufferable stench.

THE MERLIN.

THIS is the name of the smallest of all those birds of prey that hunt in the day time. It is not larger than a lark or a sparrow, or at most a black bird, and has a beautiful plumage; though there are some of an ashy grey, spotted black and white, others with the head red, and many other species of all different colours, that are found in all the four quarters of the globe. The grey merlin, represented in Plate III. fig. 9, inhabits our climates both summer and winter; but some of the other species retire in autumn into warmer climates, and do not return till spring. This bird sometimes builds in the forest, sometimes in the open fields, on scattered trees, bushes, &c. and lays from five to eight eggs. It preys upon sparrows, larks, wrens, and other small birds, in want of which it subsists on insects.

This small bird is very bold, and with its piercing cry of trui, trui, trui, has often courage enough to attack magpies, crows, jackdaws, which it frequently wounds, but which likewise often give it a rude reception, and pursue it till it be half dead; which is not surprising, considering the superior size of these birds. Sometimes a merlin is seen fall to the ground with its claws fixed in the body of a poor lark which defends itself to the utmost, and with which it fights till it be dead or nearly so: for this little assassin has the most bloody dispositions, and rather than quit what it has seized, be it weak or strong, it will submit to be killed itself. Some advantage may be derived from taming it, and keeping it in an apartment for destroying insects: it in truth makes a quick dispatch of them.

In some countries it is called kill-nine and also impaler, because it is said to have been seen to spit, on the prickles of a bush, eight or ten beetles, may-bugs, or other insects, to have the pleasure afterwards of crashing them at its leisure. This in reality would be a singularity that is not remarked in any other bird of prey, either of the day, or night.

P. But, dear Sir, are there then some that hunt by night?

M. Undoubtedly; there are several, which in general get the name of owls.

OWLS.

When other birds have mostly all resigned themselves to sleep and repose, the owls leave their obscure retreats, come forth to seek their prey, and destroy a great number of birds and other small animals.

P. But can they see during the night?

M. Do not cats see; mice likewise? It has been observed that these animals have their eyes constructed after a particular manner *, which fits them for catching those rays of light that escape ours, and that are present in the atmosphere, either in consequence of refraction, or from the presence of those innumerable suns which we observe in the heavens, and which are called stars. Nevertheless, there are who allege, without giving sufficient reasons, that these birds see neither better nor worse than other birds, but that their eyes, too sensible to support the beams of the diurnal luminary, are better adapted to enable them to pursue their prey in the twilight, morning, or evening, as also by the light of the moon; so that in those nights which are entirely dark they cannot hunt, and are obliged to fast, or content themselves with the short intervals of the twilight.

However, they frequently do not find enough to satisfy themselves in this short search; but they make ample amends for this when the moon shines; then, they revel; birds of every species, rabbits, young hares, bats, serpents, lizards, insects, and what not; there is nothing, even fish, oil, butter, fat, cheese, that does not suit their taste, when they can get a hold of it.

P. Do owls then never fly in the day, or can they not?

M. They can fly by day, but little; that is the season of their repose, and however gloomy the day may be, it is always against their inclinations that the owls leave their retreats. If one chance to make his appearance in the day time or be discovered

---

* Haller among others, according to Bomare.

covered by the other birds, nothing can appear more stupid or silly than this nocturnal murderer; tit-mice, chaffinches, the smallest birds deride, insult, peck him, without his offering to defend himself, or even appearing to have the power. We must believe, however, that he despises them, in the assurance that they can do him no injury; for if he be attacked in the day by a pie or a crow that are stronger than him, he then throws himself on his back, and defends him self like a lion, with claws and bill, to the last breath. But on the approach of night he is well able to take revenge, both on large and small. Besides, there may be another reason that prevents his coming abroad in the day, which is, that with his large cat's head, and his two large, immoveable eyes, sunk among his plumage, he is an object of digust to all other birds, who hate and chase him.

Owls take up their abode in holes in the rocks, in old desolate towers and castles, old churches and other places, whence they are not easily dislodged by men or animals; so that they pass the day in tranquility.

Nocturnal birds of prey are pretty common. In Europe, we divide them into two families, towit, the eared owls or horned owls, and the owls without ears; again, there are three varieties of the first, and five of the second---eight in all.

All those named eared, both the large, the middle sized, and the small species, have at the side of the head, a kind of tuft of feathers, which they move at pleasure, either elevating or depressing it.

The great eared owl is the size of a goose, covered with a blackish plumage, with red spots:

it is an inhabitant of the woods, and never frequents villages or other inhabited places. It utters a cry of hou hou, hou hou.

The middling sized owl with ears, is not larger than a magpie; it has the eyes blue, the plumage grey, spotted with brown, and its cry is clof cloud. See Plate VIII. fig. 23.

The little eared owl is not larger than a pigeon; it has the feathers grey spotted red, and its cry is ho ho, ho ho.

The following are the five species of owls without ears.

The large owls of the forest, which have the the feathers black, spotted with white and red; they are as large as a goose, and during summer reside in hollow trees, but in winter in barns, among hay or straw, where there cry is hou, hou

The grey owl is likewise nearly as large as a goose, but its cry is quite different: it is gri, gri. It lives solely in woods. It is said that in some distant countries, for instance, in Syria, they have been known to attack very young children and tear them.

The church-owl represented in Plate VIII. fig. 19, is the size of a hen, with the plumage of a yellowish brown, spotted with gray and white, or below with white and black. It frequents cities and villages, the top of belfries and churches, where it is heard occasionally, when it flies, crying che chei, chew chiou; and when at rest cre cri. It does not build a nest; the female lays her eggs upon stones in the ground, or on a beam. In severe colds it conceals itself among ſtraw or hay, where five or six of them are sometimes together in the same hole.

The quarry-owl or large owl, is about the size af a crow, and haunts quarries, old churches and ruined castles. Its plumage is yellow, with white and red spots, and its cry is gou, goia.

The small owl or bird of death, is not larger than a black-bird, and has the plumage checkered with white and brown. Its cry upon the wing is hou hou, and when sitting, heme: it frequents churches and other large decayed buildings.

In sound sense, owls ought not to be considered as an odious race. They destroy field and garden rats, which make such havock among our depositaries of grain and fruit. Nevertheless, the stupid peasant and the superstitious citizen still continue to have them in abhorence, and to be much more frightened for them than for other birds that are much stronger and much wickeder.

P. And why then, dear Sir?

M. What! have you never heard some old domestick speak of them? have you not been told how often these poor birds are the harbingers of death, and whenever their doleful cry is heard, some person is sure to die soon in the the neighbourhood, especially in that house on which one of them shall have perched for a moment; for the time, the thing is considered as infallible. Thus as soon as the fatal cry is heard, the people begin to tremble and to grow pale, and if this ominous bird should unfortunately happen to approach their habitation, or so much as light on their roof, then, for certain, all is gone.

dressed or raw, roasted or boiled, pastry, fruit, vegetables, bread, &c. He takes each morsel with one claw and carries it to his bill, resting on the other till it be eaten. In Plate II. fig 289, are represented two parrots.

P. Are there many parrots?

M. There have been reckoned at least thirty species, all very different in size and colour. Some are as large as a dunghill cock, and others scarcely so large as a sparrow. There are some red and green, yellow and grey, blue, white and black, and a variety of other kinds, each more beautiful than another, which have got a thousand curious names, as the noble lady, the red parrakeet, the yellow bill, the cokatoo, &c. all these are very dear. The parrakeets have obtained their name from their cry, as also the cokatoos, which have a fine tuft of feathers on the head.

There are parrots in the East Indies, in the southern parts of Africa and America; but the most beautiful come from the Indies and from China, where they nestle on the cocoa and nutmeg trees. They suspend their nests to the extremities of the branches, to prevent serpents and lizards getting at them.

The parrots have two toes before and two behind, and, making use of their bill like a third claw, they clamber slowly from branch to branch upon trees, because, as they lift each claw, they lay hold with the bill to support themselves.

In China and in other countries of Asia, individuals who take parrots for the purpose of selling them, catch them whilst young, nourish them for some time, and only carry them to market after they have a certain number. They are bought by Europeans, and brought to us; the price, which is always high, varies in proportion to the size, age, beauty.

But they are frequently cheated by the Asiatics, who, when the natural colours of a parrot are not beautiful enough, have the address to give it false ones by painting it, in order to get the better price.

P. Does a parrot cost high?

M. It is never less than ten, fifteen, twenty crowns, and more; but, if it be already tamed, if it can speak a little, we may reckon on paying from forty to eighty crowns.

P. And what method do they take to teach it to speak?

M. In the first place, we must remark, that this bird has the voice strong and clear, the tongue thick and large, and that it has a portion of memory. To take advantage of these natural talents, they begin by covering the cage all but a small piece, before which they place a mirror, where it may see itself. They then come morning and evening after it has fed, to repeat to it each time a certain number of words, which, after some repetitions, it retains, so that in a short while they make it say all that they have a mind. This biped has some singularities in its character; for instance, it cannot suffer men with a beard, nor any who have a certain disagreeable appearance; but it is fond of children, prattles readily with them, and particularly with the more beautiful of the fair sex. When a person wishes to put this bird into the most agreeable humour, he has only to feast him with a few sweet almonds; give him a little wine to drink, and place him opposite a mirror. Bitter almonds are a mortal poison to him, as also parsley, or the seed of that plant. There is a pleasant anecdote told of a parrot.

Henry VIII. king of England, had one which had the misfortune to fall into the Thames. When the bird found himself in the water, he began to cry; help! help! twenty pounds sterling! a sailor took him out; then the knave told him coolly; ten shillings, 'tis enough. There have been some, and are still, which discovered remarkable talents, such as singing in tune to instruments, imitating the most delicate variations of a song, &c.

THE PEPPER-EATER, OR TOUCAN.

THIS bird has the bill of an extarordinary size, very thick at the base, and contracting towards the point, which is sharp and curved. It is hollow within, dentated on the outside, and about the length of a finger, though the bird be scarcely so large as a pigeon. This bird is a native of Brazil, and feeds greedily upon pepper. See Plate IV. fig. 10.

THE RHINOCEROS-BIRD.

THIS bird is scarcely the size of a pigeon, but its bill is a palm in length, thick and large, and furnished at the upper part with a horn, nearly as large, bent forwards. It is a native of India, and lives on carrion, Plate X. fig. 32.

THE RAVEN.

THIS bird, the crow and the jackdaw, are the three species of fowls known to us in this country, for their serviceableness in clearing our fields of carrion and other filth, as also of many destructive insects.

P. But, do they no hurt, that they are persecuted so much?

M. If they do, it is not much. They but seldom enter our gardens; and as to our fields that are newly blossomed, they rather seek worms and insects there than grain. If they do swallow a little here and there, or if they kill some bit small bird to eat it, or if they fall upon some young hare, instead of contenting themselves with carrion, it is not worth the while to reproach them for it.

The raven is as large as a young pullet, of a beautiful black, builds in trees in the forests, and passes the greatest part of his time in places where carcases are thrown, the smell of which attracts him at a great distance. (Plate III. fig. 22).

P. Are ravens good to eat?

M. There are people at least who pretend that they make good soup. But their feathers are of some use to musical instrument makers. This bird may be tamed, and even taught to speak; but it is mischievous, a thief, and carries away like the parrot, any thing that glitters, without being able to make any use of it; insomuch that it has been made the subject of a fable, the moral of which is aimed at those misers who are eternally heaping up, for the sole pleasure of heaping, without knowing to make a decent use of their riches.

The raven crokes, which is a disagreeable and very harsh cry. There are some white either altogether or in part.

THE CROW.

THE crow is nearly the size of the raven, and very frequent in this country, where we see it constantly flying about. Its plumage is grey and black. There are some crows likewise black and speckled, but they are not found every where, and leave the country partly during winter (Plate III. fig. 2).

The black and grey crow builds her nest in woods, meadows, gardens, rears every year two or three young, and eats every thing that she can find, as carrion, grain, bread, fruits, caterpillars, insects. In winter, which is a season of scarcity, she approaches villages and other inhabited places, and seeks her food among heaps of dung and filth, and even in barns. In general she is very fond of worms of every species; and no sooner is a field turned up afresh, than we see her in the track of the ploughman, who would of course be very wrong in injuring the enemy of his enemies, as but too often happens. We have already related the story of the Virginians, who, after having destroyed the useful race of the crows from their fields, were forced to regret them, when they saw their harvests laid waste by a prodigious number of a certain species of beetle, of which crows are very fond; this was the pea-grub: but it was too late, the crows could not be brought to life again.

THE JACKDAW.

THIS also is a very common bird in our country; it is black, like the raven, but much smaller, nestles in towers and in old walls, lives on carrion, insects, vermin, fruits, grain, and utters the cry of do, do. (Plate III. 25).

The grey jack-daw is not so common and is not found every where like the black; it leaves us during winter, and its cry is glass, glass.

This bird is likewise capable of being tamed, and taught to speak, but thieves like the others, and carries away every thing that is white and shining. For that reason, we are not fond of them in our houses.

THE MAGPIE.

You are undoubtedly acquainted with this bird, or I am much mistaken. This prattler is but too common in our houses, on account of its clutter, and also for its spotted plumage of white and black. It is near as large as the raven, builds upon large pear-trees in gardens, near villages, and even cities, covers its nest with thorns, and may be taught to speak. Its cry is chac, chac, or jac, jac. See Plate III. fig. 3.

P. Yes; but the magpie is said to be a great thief, and to have occasioned many accidents.

M. That is but too true; it is the greatest thief of the whole family of knavish birds; so that even though you have none in the house, you are not sure but you may be robbed by one of them. It takes up its abode in the neighbourhood of cities and villages, for the purpose of being near poultry houses, into which it boldly enters, sucks any eggs that it may find, or carries off the young chicks. The sight of a man does not alarm it in its expedition. It likewise devours small birds, as sparrows and others, and destroys their nests. In winter it seeks barns, granaries, to shelter itself among hay and straw.

On the other hand, it is perhaps the bird that of all others learns the easiest to speak. A magpie shall know all the names of the people in a family, shall bid each good day and good night, wish them a good appetite, ask for meat and drink, return thanks for what it receives, say a number of other things, and even come the length of repeating whatever it hears.

THE JAY.

This is as large as the magpie, but much more beautiful and of richer plumage. We distinguish three kinds in Europe, and that of the walnut-tree, that of the birch-tree, that of the fir-tree; but there are several others, less common The most beautiful species of the kingdom is the jay of Strasburgh or Alsace, called also the German parrot, on account of the beauty of its plumage, spotted with yellow, green, blue, violet, and black. The common jay eats nuts and mast, and likewise all kinds of small birds. It lays up for winter, magazines of nuts and mast, in hollow trees, or among thick briars; and sometimes so well concealed that itself cannot find them again; so that these fruits germinate in the place where they were deposited, and one is surprised to perceive walnut trees or oaks grow in places where he did not expect to meet with them.

THE NUT-CRACKER.

It resembles very much the jay, but derives its name from its fondness for nuts, walnuts, especially almonds, and from its address in taking out the kernel. It likewise eats all kinds of grain, and also worms. It is checkered with blue and red.

THE COLIBRI.

This is the smallest of all birds, and the most beautiful; it is one of Nature's little masterpieces. Its plumage is variegated with the most beautiful green, red, yellow, and blue, and it scarcely surpasses in size a may-bug, which has procured it the name of the fly-bird. In spite of its diminutive size, it has a clear and piercing voice. It is found in South America, and hovers like the butterfly over flowers, of which it sucks the juice like the bee, with a litttle bill long and hollow like a tube. (Plate II. fig. 12).

P. Goodness! how small its eggs must be; are they not?

M. Like peas.

P. And a bird is produced from them?

M. Yes, a bird, which is at first not larger than a common fly, and by degrees gets its robe of little feathers.

P. But are some of them not brought into Europe, in the same manner as parrots are brought? how pleasant it would be to see the nest of the colibri with the father and the mother!

M. Ah! that's true: but I have heard no intance mentioned of a live one brought to this country. The most that has been able to be done for us has been to bring us some dead ones, dried in such a manner as not to spoil their beautiful colours.

P. Of what do they make their nests?

M. Of cotton and other fine soft materials; they build them on trees, but not on the branches; they fix them between two leaves, so that they are suspended in the air. See Plate II. fig. 13. Their bill is not thicker than a needle, and yet it is a tube or pump, with which they easily suck the juice of flowers; for they nourish both themselves and their young with nothing else.

P. But may they be eaten?

M. Undoubtedly, and they have also another property, namely, that the American ladies place them among their hair or on their head dress like flowers. But this poor little bird is exposed to many dangers in consequence of its smallness and weakness; its mortal enemy is a species of spider as large again as itself, who, when he sees it fixed upon a flower, comes to surround it with his threads, as if it was a fly, and then sucks it in the same way.

THE WOOD PECKER.

THIS bird does not suffer itself to be ill used by spiders, it is the greatest destroyer of insects. However, it prefers to them certain small woodworms that are common in forests. The family of the wood pecker is very numerous; seven or eight species of them are known, both large and small, black, green, spotted, some as large as magpies, others not larger than sparrows. They nestle in the woods, where they feed on the larva of beetles concealed among the chinks of the bark, and also among the wood, whence they extract them by means of their long ſharp bill, and also by their tongue, which is still longer, armed at the point with a kind of needle as hard as horn, and toothed. They strike vigorously with their bills againſt the bark of trees, in order to force their way through, and the noise is heard at a great distance through the silent woods. Fig. 18. Plate V. represents a wood pecker fixed against a tree.

THE CREEPER.

THIS differs from the wood pecker both by its tongue, which is not long, nor armed, and by its claws, which are disposed, three before, and only one behind. It is as large as a lark, creeps into hollow trees, and lives on the insects that are found there.

The wall-creeper is another species which has the bill thin and arched. It nestles in hollow trees, and in the holes of walls, and there feeds upon insects, as also under the roofs of houses.

THE WRYNECK.

THIS bird is as large as a lark, with a plumage of a speckled brown, and can twist its neck in such a manner as to turn it almost completely round. It resembles the creeper in its claws, bill, tongue, feeding, nestling, &c. Nevertheless, it only fixes itself upon rotten wood, for the purpose of catching inſects, and frequently upon ant-hillocks.

THE KING-FISHER.

This is a charming bird, on account of the beautiful blue and red of its plumage; it is not larger than a lark. It nestles in the sand on the brink of rivers, where it subsists on small fishes. According as it wishes to crawl or run, it has the power of turning backwards one of its three fore claws.

THE HUPOE.

It has a beautiful plumage, but otherwise, is a nasty stinking bird, and delights in filth. It is the size of a lark, of a red and brown colour, and carries on its head, a beautiful crest or plume of feathers, which it moves at pleasure, or rather which it raises when frightened, and lays down when about to fly. It builds its nest in hollow trees, and plaisters it with ordure or excrements, perhaps to defend it from injuries; it lives almost solely on the inſects and larva that are in excrements; so that, wherever it takes up its residence, thence issues a disagreeable smell. (Plate XII. fig. 30).

THE BIRD OF PARADISE.

This is a bird of the most exquisite beauty, of the size of a starling, or thereabout, and is a native of the Indies. Credulous people believed and related, that this bird fell from heaven, wanted feet, continued always in the air, and lived solely upon air, where the male made his female lay and hatch upon his back; and, in short, that only dead ones were found upon the earth. But it has been discovered, that the Indians take them when very young, and cut of their feet, to sell the birds to the foolish Europeans, ready to swallow every thing, and to give a great price for them. At present, they still cut off their feet, to make them pack the easier, or to employ them more conveniently as ornaments for the head. (Plate IV. fig. 1).

THE LORIOT.

THIS bird is about the size of a lark, has the wings black, and the body of a greenish yellow; it eats all kinds of insects, and also red fruits, particularly cherries. It builds its nest at the farthest extremity of the branches, to defend it from the access of apes or other animals. It constructs it of straw, of hemp or flax, of moss and leaves, all neatly and properly arranged, so as to represent a pitcher with a strait neck. Its name is derived from its cry.

THE BEE-EATER.

IT is about the size of a lark, with a beautiful blue and red plumage, and lives almost solely on bees and wasps, though it likewise readily takes grashoppers, common flies, and gnats. It is most frequent in the southern quarters of Europe, and particularly in the island of Candia.

THE CUCKOO.

This bird is of the size of a pigeon; its plumage is black, grey and white. It frequents trees in woods, fields, gardens, and lives on flies, spiders, all kinds of insects. You have certainly heard it cry more than once, coucou! coucou! (Plate VIII. fig. 21).

P. Ah! dear Sir, is it true, that the cuckoo does not build a nest like other birds, to place its eggs in, and to hatch them?

M. Nothing more certain: the reason of it is, that it cannot support the least cold, and that it does not continue in our country at most above three months, in its haste to regain a warmer climate. This being the case, it would not have time to hatch and rear its young; it therefore leaves this trouble to other birds, in the nests of which the female deposits her egg.

P. But the young cuckoos too, what must become of them?

M. You are right; for, if the parent birds could not support even the slightest cold of our climate, how should their young, which they had thus abandoned, be capable to endure it? Thus, some of the learned pretend to have observed in dissecting this bird, that its stomach was situated differently from that of all other birds, namely, under the intestines, or at the bottom of the belly; so that it could not hatch eggs without giving up taking food; because, in that situation, it would be impossible for it to digest*. Others have added, that, besides that, its stomach was remarkably large, so that it would break the eggs in attemping to hatch them; but that seems absurd.

---

* See Valmont de Bomare, who quotes a memoire on the subject by M. Herissant.

P. But does the female lay only a single egg?

M. She lays four: but she has the discretion to lay only one in each nest that she makes use of, that of the wagtail, the linnet, the titmouse, the red breast, which it generally prefers, because these small birds feed their young on caterpillars, and other insects.

P. But do they not percieve that a stranger egg has been deposited in their nests?

M. Whether they perceive it or not, they are not observed to neglect this egg more than their own, nor even the young bird when hatched.

P. Ah, mercy! this poor little linnet what difficulty she must have to feed this great rascally cuckoo!

M. Yes, indeed; these little birds generally carry a couple of caterpillars to their brood, and the glutton would easily swallow a dozen. Nevertheless, we must not believe that the young cuckoo, though he may be hungered, is ever so wicked or ungrateful as to eat his foster-mother or his foster-father, as some have alleged. At most, it may have happened that a cuckoo, when pretty far advanced, as it opened its great hungry bill to take the morsel from a tit-mouse, may have taken the head of the poor creature into its great maw, and have thus stupidly squeezed it along with the morsel. Perhaps, too, after this first accident, it may have devoured it altogether, in consequence of the same stupidity.

P. But the poor tit-mice, what remains for them, if the cuckoo takes every that is brought by the mother?

M. Not much truly; the glutton is always in hand with whatever is brought; he presses and pushes the other poor little things to get nearer, till at last they frequently fall from the nest upon the ground.

P. Ah! the poor little things!

M. So much the better for them: then the parents bring them enough of food, and the cuckoo has only the surplus, if there be any. Thus impudence and gluttony often bring on their own punishment.

III. CLASS OF BIRDS.

We now come to the class of aquatick birds, some of which you already know, since it comprehends swans, geese, ducks, and likewise divers, petrels, pelicans, gulls, and several others.

This class of birds is distinguished by a large bill, blunt and flat, covered with a thin skin, by a thick tongue, and small teeth, by their short legs, and their webbed feet, that is, whose toes are connected together by a membrane, and serve them for oars in sailing upon the water; and, lastly, by their inclination for water; where they eat all sorts of small aquatick animals, water plants, and seeds. They lay annually ten eggs, and even as many as twenty, or more; but they do not construct nests: they content themselves with making a hole in the earth, or otherwise, where they deposit their eggs. Afterwards, when they are obliged during incubation, to leave them in quest of food, they cover them with feathers, which they tear from their own bodies, for fear of their growing cold. The males take no charge of the family, and do not even trouble themselves to bring food to the females during their incubation.

The flesh of these birds eats well, and also their eggs; and we make use of their small feathers for filling beds, and of their quills for writing and other purposes. This class of birds, or the webbed footed, are the only ones that have the privilege of swimming and diving, even without wetting their feathers. For this purpose, they are all furnished with two small bladders, situate near the tail, and filled with an oily matter, with which they are at great pains to anoint their feathers one after another. All other birds are afraid of being wet, because the water which penetrates unanointed feathers, makes them cold and sometimes occasions their death.

The largest bird of this class is the pelican, and the smallest the petrel; this last is not larger than a swallow; and the former greatly exceeds a swan in size, which again is larger than our tame goose.

THE SWAN.

THE plumage of this bird is of the most exquisite whiteness; it has the feet black, and round the nostrils a stripe of the same colour: it is known in every country in Europe, where it has likewise been naturalized. But in North America, in Greenland, Norway, Sweden, and Russia, it is infinitely more numerous; it is likewise from these countries that we derive it. It is found in several countries in Europe, both wild and tame. When we wish to tame swans, we must begin with cutting their wings, they are afterwards to be plentifully supplied with bread, and great care must be taken of them and their young. When once they have been fairly accustomed with men, they may be left to wander day and night upon lakes, ponds, rivers, like ducks and geese, without a single one going astray. (Plate IX. fig. 24).

We commonly see large flocks of them at the seats of our nobility, and at the palaces of sovereigns, and other princes of Europe; they construct their nests among bulrushes on the margin of the water, or among the grass that grows in the midst of it, or upon stones, on wood surrounded with water; and if the bit of wood should even be floated by the water, and along with it their nest, they do not leave it. They bring forth annually six or seven young, which they take the same care of as geese do of theirs; they conduct them, and call them whilst swimming, whenever they find any food for them, as snails, worms, or tender grass; and even whilst their young are incapable of swimming with perfect freedom and safety, they take them on their backs, and carry them.

The flesh of the swan is likewise eaten, but it is rather tough, and far from having such a fine flavour as that of a goose; nor are their eggs very good either; but their feathers and down are quite of a superior quality and value to those of the goose: they always bring double the price, both the down and the quils. The skin of the swan, covered with its down, is frequently employed for making tippets and borders.

It was long imagined, and there are many good people still who believe, that the swan sung delightfully: far from it, its voice is not more melodious than that of a goose, with which you are acquainted, and which probably has not ravished your ears.

THE GOOSE.

THIS is one of the most useful birds that man has taken under his care. We eat the flesh, the fat, the eggs, the intestines; we use its quils for writing with, and other purposes, and the small feathers for making fine beds. (Plate IX. fig. 25).

In a word, every thing in a goose from head to foot, is of some use. It is likewise extremely numerous in Europe: there is scarcely a village in some countries where several hundreds are not raised annually; guess then how many goose heads there must be in the world!

And the wild geese! this species is equally numerous, and as various. They are smaller than the tame geese, and have the plumage brown, grey, and black. Some flocks of them visit our fields in spring; which again leave us on the approach of winter. They are very inaccessible, and never light upon a tree or on the ground, without having previously examined the whole neighbourhood, to satisfy themselves that they have nothing to fear. But stratagems and arts are not wanting to get the better of their vigilance; and the sportsman, under cover of his disguises, finds means to enrich the kitchen with them: they are excellent when roasted.

A goose is in general a very stupid animal; and the name has been given as a nick-name to people that were distinguished for the same quality. Notwithstanding, the goose is vigilant and light slept; a proof of its watchfulness, is the important service rendered by the geese to the city of Rome, in ancient story, by giving notice to the soldiers, by their cries, of the approach of the Gauls, a service, which, by way of acknowledgement, procured them the honour to be accounted sacred birds. It is likewise said, that the goose is capable of instruction and that one has been seen to turn a spit in the kitchen.

THE EIDER GOOSE.

This, beyond contradiction, is the most remarkable bird of the whole family, since it is from this we obtain the best and the most valuable down, that known by the name of eider down. This bird is a native of the north; it inhabits Iceland, and the islets, shelves and rocks that surround it: it subsists on snails and fishes, and all sorts of aquatick insects. Some naturalists class this bird among the genus of ducks. It constructs its nest of moss, and lines it within with the down that it tears from its own breast. The female lays from five to eight eggs, which she hatches without the smallest assistance from the male, if it be not that she places him as a sentinel beside the nest, when she is forced to leave it in search of food, after having carefully covered the eggs with some more down. This sentinel, however, does not always preserve the eggs from being sucked by ravens, crows, gulls, and, if they do escape these winged robbers, they can scarcely escape the Icelanders, who, at the risk of breaking their neck a thousand times, scramble up the sharpest rocks, to seize the eggs and the down of this bird, under the very nose of the sentinel, and even under the female whilst brooding. The poor birds defend themselves, in fact, and particularly make a hideous noise with their hoarse voice; but the Icelander seizes his prey, not a bit the less, and coolly goes in quest of another.

P. And do the poor birds upon this give themselves up to despair?

M. Guess what they do! the female, in spite of her grief, does not lose heart; she labours to repair her nest, plucks some more of her feathers, and lays another hatch of eggs; she then begins to brood. Not yet; does not the wicked huntsman return, and carry off the eggs and the down as before?

P. Ah, the wicked thief! and the birds lay no more eggs for the time?

M. They pick up their spirits again, and lay a third hatch; but it would be the last, if this was taken away. This is known; and, therefore, when the huntsman returns, he is satisfied with constantly taking the down, and does not meddle with the eggs. In this manner, is obtained the eider down, so precious, and so much sought after, which often proves an uneasier bed than a little fresh straw.

P. But do they not take the birds themselves to eat, or for sale?

M. No: otherwise the birds would soon be destroyed, and they would no longer have any thing; their laws in this respect are strict.

P. It is, however, extremely foolish, to go in this way to risk their lives among precipices, for a handful of feathers and a few eggs?

M. No doubt; in respect of us, who can only walk upon paved roads, and in shaded alleys. But to the vigorous Icelander, accustomed, from infancy, to clamber from rock to rock, 'tis a trifle, a pastime. Besides, the down brings a great price and is a source of considerable wealth to the country. When a person has a family to support, he gets courage to attempt acquiring some thing in spite of the difficulties he may meet with; if the bird herself be at such pains with her family we need not be surprised at the Icelander's attention to his.

There are likewise eider geese in other countries of the north, as in Sweden and Norway; but, as these countries are not so destitute of other resources, the less care is taken to turn these to account. The Swedes kill these birds without ceremony, and carry them to market, body and feathers. But then the down is no longer so fine, and the bird itself is not a very delicious morsel. As to the Norwegians, they take the trouble of clambering the length of the nests, and break the last phalanx of the wings of all the young, to prevent their flying, and that they may be easier taken.

DUCKS.

THESE are much smaller than geese, are mottled with white, black, brown, blue, green; and, as their feet are placed very far back, they cannot run, and walk very ill. They are very voracious, and eat every sort of thing, grain, fishes, frogs, insects, worms, ordure; they swallow down every thing. (Plate IX. fig. 26).

Like the geese, some ducks are wild and some tame: the wild have no white in their plumage, and frequent marshy places, where the female lays annually ten or a dozen eggs.

We eat their flesh and their eggs, both of the wild and tame species, and use likewise their feathers. The tame duck lays at a single hatch fifteen or twenty eggs, as large as hen eggs, of a whitish colour, tinged with green mixed with blue.

We have a particular species of duck in France, to wit, the field duck, whose flesh is as delicate as that of the pheasant. There is likewise a particular species in Germany, called the mirror-duck, or duck with a large bill, which has a beautiful plumage, spotted with blue, with grey and brown, and whose flesh is likewise excellent. Some wild ducks have the bill shaped like a spoon.

THE DIVER.

THIS bird is nearly the colour and size of a wild duck; but it has the bill sharp; it can neither walk upon land, nor even keep itself standing, because its feet are placed just about the vent; so that it is obliged either to fly or swim, when it changes its situation: thus, it is constantly seen upon rivers, lakes, ponds, and subsists almost solely upon fishes and aquatick insects. It can dive to the very bottom of the water and swim there; so that it can pursue its prey with ease. It is likewise capable of being tamed and taught to chace fishes, in the same manner as we hunt birds; it is pretty to see it, upon a signal being given, dart into the water, and return in an instant with a fish in its bill, which it carries to its master.

THE STORMFINCH.

THIS small bird, which is scarcely the size of swallow, flies to a great distance upon the sea, sometimes winging its way among the clouds, at others, gliding upon the surface of the waters; and, when wearied flying, it begins to swim with its webbed feet, and to catch fishes, on which it subsists. It is of little consequence to it to be buffeted by the waves, or even covered by them; it is equal to all that; and, besides, if they become too powerful in one place for it, it rises and goes to some other, where the sea is more tranquil: for, as to the storms, it cannot withstand them, and would therefore be undone, but it has the sense not to trust itself to the water when it observes a storm coming; and this it always knows, provided it be flying high, and can feel the current before it reaches the sea. No sooner does it observe the approaching storm, than it eagerly seeks out a place where it may be beyond its reach. If it observe at this instant a ship at sea, it flies to perch upon it, and does not leave it till the storm be past: thus there have sometimes been observed alighting upon a vessel, some hundreds of these poor birds, so trembling and so panick struck, that they suffered themselves to be taken with the hand. On the one hand, they spread terror through the whole vessel, by the bad news which they bring; but, on the other, they render it an important service, for then the crew take their measures to avoid the danger themselves. This has procured it the name of the stormfinch, and not the power, which it was believed to possess of walking on the waters with ease, even in the midst of the most violent storms; a false idea which has occasioned it to get the well known name of petrel, as if we were to say little Peter, in allusion to St Peter's walking upon the water. It is true that the petrel flies rapidly upon the surface of the water, so that it appears as if running; it likewise swims well, and can also dive a little.

P. How is it shaped then?

M. It is very beautiful; it has the bill long and slender, sharp, and a little bent at the extremity; the head blue, the neck blue and green, and the rest of the body of a beautiful glossy black, mixed with a little white. It is extremely voracious, and fatigues itself eating before it be satisfied.

THE PELICAN.

THIS is a large aquatick bird, whose parental tenderness has been the subject of fables, in the same manner as the harmonious voice of the swan.

P. Is it not, dear Sir, the same bird of which I have a drawing at home, which gives to its young its own blood to drink? that is noble!

M. A father and mother, that spend their life in nourishing, rearing, and taking care of their offspring, furnish them truly with their blood, their proper substance, to drink. It is a pity, that this affecting truth should till now have been represented under a false emblem, taken from the pelican, which never draws its own blood to give drink to its young, though it be careful of them, as we have seen to be the case with others.

This bird has under the chin a large bag; which it fills with fishes and other things for eating. For this purpose, it has only to open its great large bill, which is of a particular structure; it swallows at once whatever it may find beneath it, and water along with it, and then goes with this provision to its young, and empties its sack. This bag is more than two feet long, and one wide; it is situate immediately under the bill, which is itself of nearly an equal length, by two or three inches in breadth. This sack wonld easily admit the head of a child; and it has been alledged that this bird carried off children in Ethiopia, but without sufficient reason; besides, fishes are plenty in Asia, in Africa, and in America, where these birds abound.

The pelican constructs its nest in rocks, near the sea, and lays every year five or six eggs. It never leaves its native country, because it can neither fly high, nor far *. However, it has sometimes happened, that a young pelican that had wandered at sea, has been driven to a distance by the winds, or brought to Europe by men.

As this bird has no tongue. . . . . .

P. No tongue!

M. No, and that had given occasion to think, in the first that was taken, that the fishes and other animals which it swallowed alive, had devoured its tongue; and that even after being introduced into its pouch, they made a hole therein to escape. But, on considering it a little more attentively, we observe that it can very well want

---

* Among all the birds mentioned by the ancients, there are none which have such large wings, nor which fly so high as the pelican: they often measure eleven feet in alar extent; and they have been elevated so high in the air, that they did not appear larger than a swallow. We read, in a letter of Coulman's to Gessner, that a tame pelican, kept in the palace of the Emperor Maximilian, had lived eighty years, and that it attended this prince, even to the army, upon wing. We have proofs that this bird is able to support in the air, by its flight, far beyond its own weight. On dissecting this bird, a great quantity of air has been observed to escape from the cellular membrane under the skin, and from the pouches of the stomach; this air serves to inflate the skin of the bird, and renders it so light or fit to continue in the air at a great height. (Valmont de Bomare).

want the tongue; and that even, if it had one, it would only embarrass it, and block up the entry to the pouch, into which it takes down its food. Its bill is sufficiently strong to break and grind whatever it may have occasion to take down into its stomach: for instance, the bones of young cats or dogs, that it sometimes catches. It likewise swallows without the assistance of a tongue as much water and more than is necessary to quench its thirst; nor, in a word, has it any more occasion for one in that villanous cry which it utters, which resembles the braying of an ass.

The pelican can live fifty or sixty years: but the Indians do not suffer them to become so old; they kill them and eat them, though their flesh has the taste of fish oil, or of stinking fish; they even eat the guts, without emptying them. They have likewise the art of taming them, and training them to fish: they spread their large wings and strike the water with force; the fishes escape to some corner, and then they run upon them full sail, and fill their pouches, which they afterwards come and empty in their master's canoe.

They make use of the skin of the pelican, which makes a pretty enough fur; and the pouch under the bill, after being properly prepared, serves to make pretty purses.

THE GULL.

THIS bird is nearly the size of a duck; its bill is sharp and bent at the extremity; its plumage is spotted with white, black, grey, and several other colours: it is found upon all seas, or upon large lakes and rivers. (Plate XI. fig. 24). It eats fishes, and even the fat of the whale: thus it is seen in flocks in the Northern Ocean, particularly near Greenland and Spitsbergen, sitting upon dead whales, and satiating itself with their fat, without being scared at the approach of men, or flying away when they come near. It will rather submit to be trodden under foot than derange itself; but as, if let alone, it would destroy the whole fat of the whale, it is killed in whole flocks.

IV. CLASS OF BIRDS.

M. What come we to next, my young friends? what class of birds are we now to examine?

P. I think they are the marsh birds, as you called them; are they not, dear Sir?

M. Yes; for instance, the stork, the heron, the woodcock, the ostrich, the crane, the sandpiper, the water hen, the bustard, cassowary, and several other species, mostly foreign birds, and little known.

The character of this class of birds is to have the bill long and half rounded, the legs long and naked, the tail very short. Their common haunt is in fens and bogs, where they feed upon fish serpents, frogs, and other small animals that they meet with. The flesh of these birds is eaten, but seldom the eggs, and their feathers in general are good for nothing. The females of this class lay from three to fifty eggs annually; some of the species are found in every quarter of the world.

THE

THE STORK.

THIS bird builds her nest openly on the top of towers, of truncated trees, of churches, and other lofty buildings: wind, rain, hail, even thunder, nothing incommodes her. . . . .

P. But, the poor young?

M. It is true, that, when either the rain, or the hail, is very violent, both male and female remain in the nest, or at least the female, who covers the young with her wings. These birds seem to prefer those countries where thunder is frequent. In the midst of the most terrible storm, the family are seen assembled on the top of some church or old tower; the father and the mother beside one another, and the young around them, to the number of three or four; one of the parents suddenly leaves them, and, in an instant, returns with a serpent in its bill, which it distributes among the family; and the whole snap their bill for joy at such an excellent repast.

The stork is nearly as large as a goose; its plumage is white, excepting only a little black on the tail, and on the wings. It has the legs, as well as the bill, very long, and roams about incessantly in the marshes, where it takes serpents, fishes, frogs, and all other sorts of small animals. It is a bird of passage, a native of warm countries; but which pays a visit to our climates in spring, hatches with us, and returns in September with its young, already strong. See Plate XI. fig. 2.

As the stork does no mischief, and, on the contrary, helps to destroy hurtful animals, such as the venomous kinds of serpents, people have always had a sort of regard for it. This is carried so far among some people, that it is thought storks bring good luck to that house upon which they light, so that it is considered as a crime to do them any injury. They even go the length of making nests for them on the top of towers and they are careful to keep them in good repair, to bring them back from year to year. And in reality, when the storks return in spring, every one seeks its former nest; and, if it find it, especially in good repair, it only cleans it, and then begins to lay its hatch. But if the nest be gone, or if it be no longer in a condition to serve her, she goes to the nearest wood, and collects slender pliant branches, with which she constructs a new one. Simplicity, I believe, is no longer carried so far as to believe that the stork preserves from fire the house on which it builds, or even stops the fire, should it happen to catch it.

There is a species of black stork that is a little smaller than the white, and is only found in Europe, in thick forests, beside marshes, where it seeks the same kind of subsistance as the other.

Klein relates that there were fished one day in the *Baltic Sea*, and in the northern lakes, storks that seemed to be dead, but which after being brought into a warm place, were restored to full vigour, and eat greedily whatever was given them. *Foulgose* likewise says, that some English fishers drew from a marsh with their lines, instead of fishes, a group of storks, each of which had its bill fixed in the fundament of the other, so as to form a chaplet or rosary. These two instances would lead us to suspect, that storks wintered with us in a torpid state under water, as some of the swallows are said to do.

THE

THE CRANE.

It is nearly as large as the stork, of an ash-grey plumage, nestles upon trees, both in Europe and in Asia, and lives upon all kinds of seeds. It is a bird that may be tamed and taught to perform all kinds of pleasant tricks, as dancing, leaping, tossing stones or wood into the air, then pretending to catch them with its bill, but avoiding them on the contrary, and escaping them with address, making hunting parties with its companions, and a thousand other tricks. It lives upon grain, and has a wonderful knack at picking the ears, especially of barley; it afterwards takes voluntarily, by way of desert, a few earth worms or other insects. The cranes sleep on one foot.

THE HERON.

This bird (Plate V. fig. 37), has the plumage ash-grey: it is nearly as large as a goose, and is only found in Europe, near waters, where it lives upon fishes. It is customary with it to fly above the water, and to dart upon the first fish that it perceives; its long naked legs enable it to run with ease among mud and in marshes. It carries away its prey to trees to eat it: it does great damage in ponds; and war is declared against it accordingly.

This bird is very frequent in France, especially in Lower Brittany, and was formerly in great repute among the nobility of the kingdom. Young herons are in reality a delicate enough food; and, besides, princes and nobility took a delight in their flight, and particularly in hawking them with the falcon or ger-falcon. They are caught, at least the young, in heronries, which are sheds erected in the air, in which the herons are accustomed to nestle.

There are different species of foreign herons, such as the white, the blue, the brown, the chesnut, the tufted, the purple, the tufted American, and lastly the starred heron, likewise called the bittern, either because it cries with its bill sunk in the mud, or because it imitates the lowing of oxen; the sirname starred comes from its being marked with red spots, shaped like stars. It is a very indolent and very cowardly bird: it flies gently above the water, and catches fishes in it; but it likewise eats worms, and, in a strait, even rats. It is as large as a stork; and has the plumage yellow and brown. It lives among reeds and bulrushes. Its cry is heard at a great distance, though it keep its bill in the water. When pursuing it, we must not come too near; for it can tear out the eyes of either men or dogs. (Plate XI. fig. 29).

THE WOODCOCK.

THIS is a very well known dish among the wealthy, and in reality of an excellent flavour; it is dressed with the bowels, and even their contents received apart on slices of bread are looked upon as a great regale. The woodcock is smaller than a hen, and there are some that are scarcely the size of a lark. It nestles in woods, and subsists on worms, the larva of insects, which it extracts from the earth by its long bill, and also from heaps of dung.

There are several species of woodcocks; the largest and best is the woodcock of the forest, whose plumage is mixed with red, black, and ash colour. The snipe, which is much smaller, is seen sometimes in large flocks in the open country; it will rise out of sight, whilst we still continue to hear its cry of mec, mec.

THE LAPWING.

THIS bird is much a kin to the woodcock, both in colour and in its manner of living. The common lapwing is nearly the size of a pigeon, has the plumage of a deep brown, and a tuft on its head. It builds its nest on the ground; and, during the period of hatching, it cries loudly, quibis, quibis. Thus it betrays itself by this noise, which discovers it to the bird catchers or fowlers and brings them upon it. It is reckoned an exquisite dish, as also its eggs. After being robbed of its eggs, it lays more; and if this should be repeated, it begins anew; it will not do it, however, a fourth time.

There is a species of this bird (or according to others, of sandpipers), that are fighting and quarrelling perpetually; and which, on this account, have received the name of the combatants. During the night they sleep peaceably beside one another, and even in the day, whilst flying, they do not fight; but, as soon as they alight, the quarrel begins, and it is curious to see them fighting away with one another.

THE BUSTARD.

THIS is a large bird, whose wings are too small for flying, at least with ease, but which, on the other hand, runs very fast, especially when pursued several leagues together without stopping, so that dogs can scarcely out-run one of them. Prussia and Poland are said to be the native countries of the bustard; it is likewise found in France and several countries of Europe.

It nestles among fields of barley, and eats the young blades, as also all kinds of grain, and even turnips; nor does it disdain the frogs and worms that it finds in the fields. A good bustard weighs always from ten to fourteen pounds, and makes an exquisite roast. The male is as large as a turkey-cock; he has the head and neck of an ash-grey, the belly white, the back and the wings reddish, with black spots; he has also a tuft under the bill. The female is nearly a half less, and nearly resembles a lark. She makes a hole in the earth, by digging, to deposit her eggs, to the number of two, not more, which she hatches for thirty long days with much pain and uneasiness.

P. And why so?

M. Because she knows that she will with more difficulty escape from dogs and huntsmen, and that she can still less abandon her brood; thus, if she chance to be discovered and pursued, she takes her eggs hastily under her wing and runs away as rapidly as she can, at the great risk of letting them fall.

P. But, if she was to get on a tree to allow the dogs to pass; can she not rise at all?

M.

M. She can rise high enough for that, especially if she have time; but what could she do on a tree? she could not remain on it, because she has only three claws, all before, and none behind.

There is a small species of bustard that differs from the large, only in respect of size, in the shading of the plumage, and in laying from four to five eggs. As to the other species that are known, they are found only in Arabia and in Ethiopia.

THE OSTRICH.

This is the giant of birds, the elephant of the winged tribe, at least in respect of the size of its body: its height surpasses that of the tallest man, and its weight is from seventy to eighty pounds. That would make a jolly roast; for its flesh is eaten, as well as its eggs; one of which would be sufficient for two or three men, since they are as large as a child's head, and weigh five or six pounds. Of these it lays every year from thirty to forty *. There is no large bird that is equally fruitful; and, if all these proved productive, the ostriches would become extremely numerous.

The ostrich (Plate II. fig. 11), inhabits the barren desarts of Africa, of Arabia, and of India, far from men and beyond their reach: nor is that surprising, since man meets with it only to to make war upon it, to take its eggs or its young,

---

* We read in some authors that the ostrich lays so many as fifty or sixty eggs annually: in Elien, above eighty: in Klein, and in Chave (Shav), that these eggs weigh fifteen pounds: all this is either false or at random.

young, and to kill itself. The Moors distress them terribly.

It lives on grass, vegetables, grain, nuts, and all sorts of fruits; but either for the purpose of filling its stomach, or to assist the trituration of the grain, which it swallows, it likewise takes down stones, wood, bones, pieces of ropes, of leather, of iron, of copper, pewter, lead, even glass: sometimes it happens to swallow live coals, but always to its great detriment.

The ostrich will live to the age of sixty or seventy years. But when in a state of captivity, when ridden like a horse or camel, when its feathers are frequently plucked, or when teazed in other ways, it scarcely lives to the half of that age.

P. Ah, dear Sir! can a person ride on ostriches?

M. Undoubtedly; they are strong, and extremely speedy in the race; and yoked to a carriage, they will perform a journey of five or six leagues in an hour. But a person that wishes to use them, must be well accustomed to this extreme swiftness, otherwise he will lose his breath, and even his hearing and sight. Thus, if the Arabs and Indians make use of them sometimes, it is only for amusement.

To come to the make of this animal, it is as high as a man on horseback, and has much resemblance to the animal called a camel. Its head is like that of a goose; its bill is short, sharp, and bent. It has the upper eye lids moveable, and furnished with long eye lashes as in man, and can fix both eyes on a single object, which other birds cannot do. The neck of the ostrich is very slender, and very long; and what is remarkable is, that it is covered with large white hairs, in the same manner as the greatest part of its body; but it has on the wings and the tail beautiful white feathers, mixed, however, with many that are grey and black. Now these feathers occasion this animal all its misfortunes; for it is on account of these that the Arabs torment and pursue it.

P. Ah! the cruel Arabs!

M. Alas! my dear friends, it is ourselves, that is the Europeans, and even the fair sex among us, that are cruel; for, if we were not foolish enough to pay the Moors very high for these feathers, to have the pleasure of using them for various trifling ornaments, undoubtedly they would not disturb the poor animals. Thus, we must not blame people, you see, before we know that they are to blame. As the ostrich has fewer black feathers than white, they are likewise dearer.

The legs of the ostrich are naked and long, and it has only two toes on the foot, both before: it is the only bird that has so few. Its wings, too small in proportion to the weight of its body, cannot enable it to fly; but they assist in accelerating its course; and, in reality, there is neither grey-hound, nor English hunter, that can come up with the ostrich. The Moors, however, by stratagems and disguises, make shift to take them.

Of the thirty or forty eggs that this bird lays annually, scarcely a fourth comes to good. For it would seem that a great number of these eggs are for no other purpose than for the subsistence of the young when newly hatched, which, on leaving the shell, can find no other food, and which, after all, mostly die of hunger, because a number of the eggs are always carried away: and,

lastly,

lastly, many of the young ostriches are taken by the Arabs in the chace.

The female lays her eggs speedily, one after another, in the warm sand, but not all in the same place; she only deposits ten or twelve together within a small circle. She hatches some when left undisturbed, and allows others to be hatched of themselves in the sand, heated by the rays of the sun*.

P. But what means do they take to catch the ostriches?

M. The chace is curious enough. The ostrich, when pursued, does not run straight out, seemingly that she may not leave her eggs too far; she only runs by describing a circle round a certain space. Thus the huntsman has only to keep within this circle, and not to lose sight of her, so as to prevent her taking food; he tires her at last, and makes her conceal her head in the sand; after which he kills her, or takes her, or does what he chooses with her. Is it, as has been alleged, from stupidity, that the ostrich hides her head, as if her pursuer saw her no longer than she continued to see him; or, is this rather the effect of despair, and, as if to avoid disgrace, like those princes and generals of armies, who prefer a voluntary death to the disgrace of a defeat that they could not escape?

P. But does the ostrich not defend herself too, since she is so large?

M. She defends herself vitiously: with a kick of her foot she overthrows men and horses, breaks their legs and arms, or tears their body from one end to the other with her claws, so as to bring out their entrails; she crushes dogs like mice; in a word, this chace is not without imminent danger, however peaceful the ostrich be of her own accord. But the Moors are not discouraged at the loss of a man or two; they continue to keep the ostrich at check, and to make her run in a circle for two or three days, without allowing her to eat; at last she is compelled to surrender at discretion, and is frequently carried away a prisoner. Then she is well treated, and fed abundantly; nor is she confined too close. But her feathers are occasionally plucked, and at last she is killed and flead for her skin, which is employed for different purposes. Sometimes whole flocks of ostriches are taken and reared, always on account of the feathers and the skin, which is very strong and thick.

---

* According to others, the ostrich covers her eggs during the night, because the heat of the sun is sufficient for them in the day time.

Ostriches are seldom brought alive into Europe. There is in South America a large bird that has much resemblance to the African ostrich, and that has obtained the name of American or bastard ostrich. This is the touyou, which is smaller than the common ostrich, and has three toes instead of two, all before likewise: in its manners and disposition it resembles the ostrich. Another difference is perhaps in the shape of its body, which resembles almost a ball.

THE CASSOWARY.

This bird is smaller than the ostrich, but still very large. It is black; and has upon the head a sort of covering or bony helmet, covered with a brown skin, a kind of collar, formed of a mixture of red and blue, and three toes to its feet. It is a native of the islands of *Banda*, of *Java*, and of *Sumatra*. It subsists on the same kinds of food as the ostrich; and lays eggs of a greenish grey, with green spots, and which are not so large as those of the ostrich, but of a longer shape. Its wings are exceedingly small, and it wants the tail altogether: it can still less fly than the ostrich.

In the island of France, in Africa, near the large island of Madagascar (also in the island of Mauritius), there are found a species of large birds of a very ugly shape, and a very disagreeable aspect, that cannot fly, and can even scarcely walk: they are called dodoes, and are very good eating.

The spoon-bill, the demoiselle, or Numidian crane, the king of the quails, the oyster-catcher, which frequents the shores of England, the avoset, with the turned up bill, &c. are likewise other species remarkable enough, but little known, of the birds belonging to this class: The following is better known, to wit,

THE PLOVER.

There are several species of the plover, some of the size of a woodcock, or nearly so, others the size of a snipe. All of them have three toes on the fore part of the foot, and none behind; or, if they have a spurious claw, it is of no use to them, either in walking or in perching. There are the golden plover, the green plover, the grey plover, the crested plover, the great plover, the ring plover, the armed plover, &c. some of these species are foreign, but others are very common in France, where they are in great request on account of their delicacy and fatness: hence we say, proverbially, fat as a plover.

To this we may add the dotterel, which is also very frequent in the kingdom, and excellent food, but smaller; likewise the English dotterel, which is of the same species.

V. CLASS OF BIRDS.

THIS is the gallinaceous class, which comprehends the peacock, the turkey, the common cock and hen; the pheasant, the pintado, the wood grous, the black grous, the red grous, the partridge, and the quail.

THE PEACOCK.

THIS is the most beautiful bird in the world; and its beauty even excels that of all other animals, however much favoured by nature in this respect. To be satisfied of this, nothing more is necessary than to see a peacock of three or four years old. What brilliancy in the shades of blue upon his neck, in the variety of colours of his crest! what richness, what magnificence in his tail! what a ravishing spectacle when he spreads it out, to display its treasures! what dignity also; what haughtiness in his gait, in his look! See Plate IX. fig. 17.

But his voice seems as if it had not been intended for him: his appearance is not more pleasing, than his voice is disagreeable. Nor has he the sense to be silent: resembling, in this respect, some other gaudy fools, that might impose upon us for a while, if they were not foolish enough to open their mouths. On the contrary, he will sometimes spend whole hours repeating his villainous cry of eco, eco, with the most hideous noise. He is about the size of a turkey; his head is small and blue, with a little white around the eyes. His neck, long and slender, is blue, like his breast; his back is of a whitish grey, spotted with black. He perches upon the highest trees, and on the most elevated places, and lives upon all kinds of grain, particularly barley: he likewise subsists on insects; but elder-flowers and nettle-leaves prove poisonous to him.

The pea-hen is much smaller than the peacock, and not near so beautiful; her plumage is almost completely grey. She lays annually from eight to twelve eggs, which she hatches herself, or causes to be hatched by the first hen in the neighbourhood. The young do not possess all their beauties when newly hatched; and it is not till the third year that their tails appear in all their glory. The peacock lives from twenty to twenty-five years. It is become pretty common in Europe, where it is reared in many places, particularly about noblemen's seats: but it is reckoned a native of Asia. It is not a useful bird, though it be valued on account of its beauty. It is wicked, and will scarcely live with any other bird, except the pigeon. It tears and spoils every thing it gets a hold of with its bill: it sometimes perches on people's heads, and diverts itself with wounding their face or tearing their eyes. It plays the master in the court-yards, and commands respect from all the other poultry; nor is one of them bold enough to meddle with a single grain, till master peacock be satisfied.

Peacocks sometimes vary in their plumage; there are some both spotted and white; all these varieties are the effect of the climates where the peacocks have been naturalized; and it is in northern regions that their plumage has become white. In India, peacocks are found in whole flocks like sparrows with us. Their flesh is eaten, and their feathers are employed for all kinds of ornaments; formerly fans were made of them, and likewise a kind of stuff. The peacock is annually subjected to a moult, in which he loses the beautiful feathers of his tail; but they are soon supplied by a new growth.

It is pleasant to observe a peacock practising the young to fly. In the evening they retire to roost upon high trees; but, as the young cannot follow them, they come to seek them one after another, and carry them on their backs. On the approach of day, they descend, and call on their young, who follow them every one in the best way it can, till they be equally expert with themselves.

THE TURKEY.

THIS bird is larger than a goose: its plumage varies a little in respect of colour; the most common turkey is spotted with black, grey, blue, with a mixture of white, and some are completely white; but these are less frequent. They have the head, the bill, the neck, covered with a reddish skin, which continues loose, and which is inflated, and becomes of a beautiful red colour when the birds are irritated. They are agreeable enough birds. Did you never amuse yourselves with making them cry, or making them spread their tails?

P. Ah, often! when we said, our comb is redder than yours, and that he was a cuckold, he got into a passion, and cried with all his might, clour, clour, clour: and then, when we held out to him any thing that was red, or when any of us were dressed in red clothes, he became still more outrageous; he ran up and down, spreading his wings, and certainly would have done mischief, if he had been allowed.

M. Yes, the poor turkies are droll enough with their rage and their hatred at red: nevertheless, they are really in earnest; and to see them raising their feathers every moment, inflating their comb, striking their wings with violence, uttering a stifled cry, and throwing themselves desperately upon every thing that provokes them, it is natural to imagine, that if they do no mischief, it is not for want of inclination. See Plate IX. fig. 21.

The turkey-hen is smaller than the cock, and cannot erect the feathers of the tail like the peahen. She lays annually from fifteen to twenty eggs, a little larger than those of common fowls, and which are spotted with reddish yellow spots on a white ground. If she perceive a bird of prey in the air, she calls loudly on her young and gathers them together in haste, to go and hide herself along with them; or else she makes them squat on the ground, and remain as dead, till such time as she lets them know the enemy is gone.

The turkey feeds upon every thing with which we feed birds—on barley, oats, fitches, bread; in short on every thing we give it. This bird is originally from South America, and should rather be called the American cock than the Indian cock; for none are found wild in India, as was formerly imagined: so that its real name rests on no other foundation than the established abuse of calling America the West Indies. It was shortly after the discovery of the new world that turkies were introduced into England and France, whence they were propagated through the rest of Europe. It is said to have been at the nuptials of Charles IX. king of France, in 1570, that the first turkey was presented, that had been imported into the kingdom. There are some black, some white, some grey, and some spotted.

THE COMMON COCK.

As to this bird, it is no stranger; he is our sweet companion, along with his pretty females, and we are perfectly well acquainted with him in every respect. His plumage is sometimes red, sometimes black, sometimes reddish, sometimes spotted: his tail is elevated and bent, his comb red and fleshy, his crow is repeated so regularly, at certain hours of the day and night, that the country people have little occasion for other watches.

As to the hen, we know how fond she is of repeating her gac, gac, gac, after each egg that she lays; and that she will lay sixty, a hundred, and even a hundred and fifty eggs; of which she will hatch the length of fifteen at a time. When once the chicks are hatched, who has not, with pleasure, observed her leading them about, watching, with the most lively and tender solicitude for their subsistence, their preservation, their education, by varying and modelling, according to circumstances, her clucking or cry of glou, glou, glou.

But what is most curious, is the anxiety she discovers, when along with her chicks, some ducklings have been hatched under her at the same time (as is sometimes done), and they happen to approach a pond, or any piece of water, into which the young ducks immediately throw themselves, the poor mother wanders round the margin, goes and comes, calls them, cries, is quite disconsolate, whilst the young swimmers, pleased with their native element, forget so affectionate a nurse, no longer regard her voice, and leave her to complain in vain on the brink.

The hen is very voracious, and can scarcely be satisfied; but when she has chickens to nourish, she can endure hunger; and, instead of swallowing what she finds, as grain, or crumbs of bread, &c. she calls them, and allows them to take it. Timid though she be, fleeing or shunning the smallest animal, the condition of a mother renders her intrepid, and gives her courage to attack the largest dog, or to defend herself against him, when she observes him to have a design on her young. On suspicion of the least danger, she gathers them under her wings, cherishes and protects them.

Poultry eat all sorts of grain and seeds, as also bread, and every thing that we eat of: they also nibble the tender grass, or pot-herbs. Not only do they leave nothing of what they are commonly given, they likewise spend the whole day in scraping the ground, or among filth, and in seeking for grain or worms, which they likewise eat greedily: their labours in this way will not near satisfy them, if they get nothing else.

The cock (Plate IX. fig. 20.) is larger than the hen (fig. 22.); he is likewise distinguished from her by the largeness and beauty of his comb, and by the spur with which his leg is furnished. He loves to be placed at the head of a dozen or fifteen females, and will not suffer another cock to intrude into his family. If one, however, be bold enough, you will instantly perceive the landlord's comb to swell, his feathers bristle, and, with eyes flashing fire, he darts on the rash intruder, attacks him furiously, and and fights till he compel him to flee, or one or other of them remain dead or wounded on the field.

He gives orders to his hens like a master, and makes them obey, or else he punishes them severely, chases them in the hen-house, pursues them in the court yard. But, on the other hand, nothing can equal his care and attention to them: when the morning dawns, he assembles with them, observes that none be wanting, runs to seek and collect those that are absent; nor does he afterwards leave them, but constantly attends to defend them. If any thing be given them to eat, he does not meddle with it, and waits peaceably till his whole family have made their repast. You hear him cry, you see him uneasy, when he observes a dog or a ſtranger enter the court; or rather when he perceives, in the air, a hawk or some other enemy of his dear concubines.

Poultry were in great estimation among the ancient Romans; it was from their manner of feeding that the Augurs drew their predictions. The cock crows at three intervals during the night, to wit, at midnight, at two o'clock, and at dawn: in the day time he crows according to occasion, or according to his whim; which he likewise sometimes does in the night on a change of weather, or if he hear some other cock crow in the neighbourhood, or even some child for amusement imitating his crow.

A good hen, if well fed, continues to lay almost, through the whole year, an egg every day, or at least every other day; but some have been seen to lay two eggs in the day. The laying commonly ends about the latter end of autumn, and is not renewed till spring: this interval is the time of moulting. In Plate IX. fig. 29, is represented a hen laying.

When a cock or pullet is caponed, a considerable change is produced in him; his voice is now but weak and harsh, and he seldom uses it; he no longer takes notice of the hens; nor does he moult any more, as the hens and cocks annually do on the approach of winter. The females are likewise spaved, and are equally delicate. Both the one and the other are the same among birds, as geldings among horses, or weathers among sheep, &c.

Hens sometimes lay eggs without a shell, and at other times with two yolks; there are likewise instances of chicks being brought forth completely hatched. To draw greater advantage from the fecundity of fowls which cannot hatch all the eggs that they lay, it has been tried, in imitation of the Egyptians, to hatch their eggs by means of artificial heat, as that of an oven or a dung-hill, and in this way we may increase infinitly more the number of so useful a tribe as is that of birds.

There are several varieties in the species of hens; the two most remarkable are the hen without a tail, and even without a rump, called the rumpless or Persian hen (Plate IX. fig. 23), and the frizzled hen, whose feathers are turned upwards. (Fig. 30).

There are some countries in which a singular enough abuse is made of that ardour and courage which nature has bestowed on the cock, and this abuse is particularly in vogue in England. There, they take pains for a while to train them to fight with one another, and to render them more fierce than usual; they likewise give them other arms than those bestowed on them by nature, to make them the more formidable champions.

P. Ah! how is that done? do they give them muskets or sabres?

M. Something yet more remarkable. They cut their spurs, and they give them steel ones in their place, much longer and much sharper; when once they have them properly trained, they bring them to the cock-pit, and make them fight against one another, in presence of a crowd of spectators. The two warriors dart on one another with fury, they charge vigorously, and tear one another with mutual wounds; after the first charge, they retreat like rams or goats: but they likewise renew it again with redoubled fury; nor do they cease till one of them be mortally wounded, or fall lifeless on the field of battle. The conqueror, elated with success, remains on the spot, and looks around him, to see if his victory be applauded, whilst the vanquished, if still alive, with a bashful and dejected air, seeks to conceal himself in some corner. These cock-fights are renewed in England every year, and great bets are taken on the combatants.

We know that the Athenians had likewise their cock-fights, instituted in memory of an important battle gained over the Persians by Themistocles; and this was what gave occasion to it. This general seeing his troops give way, and at the same time observing some cocks that were fighting in sight of the army, he took this opportunity of animating them to the combat, by making them ashamed of their own pusillanimity. These sort of fights were common enough in several of the Roman cities, according to Pliny *.

THE PHEASANT.

THIS bird is almost, after the peacock, that which has the most beautiful plumage of all. It is the size of a cock (Plate IX. fig. 18); the feathers of its neck are only grey, but those on its wings and body are of a beautiful golden yellow; as likewise its tail, which is two feet long, though it cannot erect it like the peacock or turkey.

There are, however, pheasants that are white, and of different colours.

P. But where are they to be found?

M. It is true, they are not to be met with in the open country: princes and nobility have parks expressly for the purpose, that are called pheasantries, laid out in grass and clumps of planting, where they multiply rapidly; but it is only for themselves.

To

---

* We must not forget to mention that there are three things that prove poisonons to poultry, viz. bitter almonds, aquavitæ, and coffee beans.

To find wild pheasants in the field we must go to Asia and Africa: but their native country is Mingrelia, a principality of Georgia, on the coasts of the Black Sea, on the banks of the river Phasis, a country that was named by the ancients Colchis. Thence the Argonauts took the first, which they imported into Greece, their native country; whence they have been brought into the other countries of Europe. The name pheasant, derived from Phasianus, still affords a proof of its original.

THE PINTADO, OR GUINEA HEN.

THIS bird is a little larger than the common cock, with the plumage of a deep brown, spotted with white, having the tail drooping, and laying reddish coloured eggs *, nearly of the size of hen eggs, and equally good to eat. It is seldom reared in poultry-yards, on account of its quarrelsomeness, and not agreeing with the other poultry, assuming always a superiority over the rest. It is a native of Africa.

THE WOOD GROUS.

THIS bird is two or three times larger than the common cock: its plumage is grey, spotted with brown, and its legs clothed with feathers, like the other species of wild cocks. It has also a

---

* According to Bomare, the eggs of the pintado are of the same colour with its plumage.

a red stripe round the eyes. It inhabits most of the countries of Europe, particularly high situations, covered with wood; the female lays eight or a dozen of eggs that are eaten, as also its flesh, which is excellent. It sometimes weighs twelve or fourteen pounds; it feeds on all kinds of wild berries, buds of trees, ant's eggs, and different kinds of grain.

THE BLACK GROUS.

THIS species is one half smaller than the wood grous, but in other respects resembles it much. It feeds on all sorts of berries and buds, cherries and peas excepted, which prove mortal to it.

THE RED GROUS, OR MOOR FOWL.

THE moor cock is nearly the size of our common hen, feeds upon the buds of shrubs, and particularly the heath, as also on all kinds of wild berries. It is very common in Britain.

THE PTARMIGAN.

THIS species does not exceed the size of a pigeon, and is distinguished by the white colour of its plumage, in like manner as by the instinct which it has of concealing itself among the snow, on the approach of an enemy.

THE PARTRIDGE.

THIS species is very common in France, where there are two kinds particularly known, the grey and the red; this last is almost as large as a hen; the other is smaller, but more esteemed for its taste. These birds fly low and swiftly, but do not perch on trees. They feed on berries, on buds, particularly those of the vine, likewise on grapes, lastly on worms. They nestle in the open fields, in thick and strong hedges. There are other species that are foreign.

THE QUAIL.

THIS bird is much smaller than the former; in spring we hear its pleasant chant of carcailla. It is very common in France, where it is in great request, on account of the delicacy of its flesh: but it is said, that, in some countries, it eats hellibore, which renders it less esteemed, and even frequently hurtful to the stomach. Its plumage is greyish: it flies heavily, runs well, lays eight or ten eggs, and does not live at most above six years. See Plate VI. fig. 7.

VI. CLASS OF BIRDS.

WE shall, by and by, bid adieu to the class of birds; this is the last visit we shall make them; and we are now going to pass in review before us the last family of the class, namely, the singing birds, which in truth are very numerous and prodigiouſly diverſified. But there are likewiſe a good many of the number with which you are already tolerably well acquainted, and reſpecting which we ſhall not have occaſion to detain you long.

This claſs of birds is diſtinguiſhed by the bill, which is ſharpened to a point, by their feet, which are delicate and cloven, and which ſerve them rather for hopping than walking. Some of them feed on inſects, others on grain and ſeeds, and theſe laſt are they whoſe fleſh is well flavoured. All theſe little ſongſters build neſts that are extremely curious for the ſkill and ingenuity diſplayed in their conſtruction. The females lay from five to fifteen eggs, and the males ſhare with them the fatigue of the hatch; they unite their labours in rearing their young, and ſupplying them with food in the neſt. Their eggs and their feathers are not of much uſe to us; but we eat the fleſh of ſeveral; and moſtly all of them contribute to our pleaſures, by delighting us with their exquiſite ſong.

This claſs comprehends the pigeons, larks, ſtarlings, blackbirds, nightingales, wagtails, chaffinches, ſparrows, finches, titmice, ſwallows, thruſhes, croſsbills, loriots, red breaſts, goldfinches, linnets, &c.

PIGEONS.

THESE beautiful birds vary much in in their plumage, which is ſuſceptible of all different kinds of mixtures. We take pleaſure in rearing

ing them in our houses, both in cities, and in the country, and many gentlemen build on purpose a kind of detached towers called pigeon-houses; in which they breed rapidly. When we do not wish to allow them to range at liberty over the fields, or when we have but a few of them, we take care to feed them with grain: but they have a better flavour, when they are suffered to range at large, and seek their own food, as barley, oats, peas, wheat, fitches, &c.

Pigeons, though joined together in a large flock, always pair, a male and a female (Plate IX. fig. 34.) and remain faithfully attached, rearing their family together, till separated by death, or some accident. As they hatch two young almost every month, and a male and female always rear at least nine pairs of pigeons annually, it follows, that in a few years, we may increase their numbers prodigiously, and have vast flocks of them; for, by the second year, a single pair will produce four score or four score and ten; in the third nine hundred; and in the fourth, eighteen hundred, or more. Thus, we may say, that of all birds these multiply fastest, and the consumption is in proportion; for, as they are nice in their food, and only feed upon good things, their flesh must necessarily be wholesome and well flavoured.

The pigeon lives at most eight years; in perfect freedom it may live the double of that period, or even more; for we find from experience that animals live a shorter while in slavery than in a state of nature, whatever care we may take of them. Pigeons work much about their plumage, and are at great pains to keep it in order, by arranging each feather with their bill. Their cooing is sufficiently known; by means of this they express both their joy and their loves.

There are several species of pigeons; such as, for instance, the pouter pigeon, which has the throat so large, that, by inflating it with air, as it does, in inspiration, it renders it larger than all the rest of the body.

The Jacobine pigeon is one that has large projecting feathers on the nape of the neck, which form around its head a sort of cowl or hood.

The rough legged pigeon, the largest species in this country, has the legs covered with long feathers, which fall down as far as its feet.

The peacock pigeon, so named on account of the beauty of its large tail, which it spreads like the peacock.

The ring pigeon, which has the neck surrounded with a white ring, and which frequents the woods.

The turtle is the smallest species of wild pigeons: it is very common in Europe, though it be said to be a native of the Indies: it is likewise said to be a bird of passage. Its plumage is almost the colour of raw flesh, with a black collar round the neck. Its cry is a little different from that of the pigeon.

The laugher pigeon is likewise a native of the Indies; it has obtained this name on account of its cry, which occasionally resembles a child's laugh; in general, however, it cooes like the turtle. It is sometimes reared in cages; but it does not live long, and liberty is still more necessary to this bird than to the rest of its species.

The messenger pigeon. . . . .

P. Ah! what sort of a one is that?

M. That is the very thing I was just going to inform you of. It is a species of pigeon of the size of our domestic pigeons, with a bluish plumage, that inhabits particularly Asia and Africa, though there be likewise some of them in different parts of Europe. The singular use that is made of this bird deserves our attention. It is tamed and trained to carry letters from one city to another; the paper is rolled together and fixed under its wing, and in one day it will carry it to a distance, which the best walker will not reach in six. The letters are always faithfully delivered. The Turks of Aleppo, in Syria, are still in the habit of employing these winged messengers, and the practice was formerly much more extensive. It is with the inhabitants of the city of Alexandria, in Egypt, that they carry on this kind of correspondence. To make the pigeons do this, they carry them in a cage from one of these cities to the other, to learn them their route: then, when they want to use them, they fix the bit rolled up paper under the wing of one of these birds, which in an hour arrives at the city whence it was taken, whilst a man could not have accomplished it in less than four long day's journies. Any other species of pigeon might be trained in the same manner.

THE LARK.

This bird is nearly of the size of a sparrow, of a reddish colour, mixed with black, and with the hind nail very long (Plate IV. fig. 8). It is very common through all France, where it arrives in the beginning of spring, nestles among the blades of sown fields, and has two hatches in the summer, of five eggs each. Towards St Michael, the larks assemble their young, repair along with them to a general rendezvous, and thence in a body reach a warmer climate: but this is not effected without paying a severe tax to the bird catchers of those countries which they leave. They are sometimes taken by thousands in an evening in nets: they are a delicate morsel.

This bird flies very high, and generally by towering straight upwards, chanting as it rises; so that after having lost sight of it in the boundless expanse of the air, we still hear its warble of liri, liri. The lark is easily tamed, and soon grows familiar with man, so as to perch on his hand, on his head, on the table, on the plate on which he eats. But there are different species, such as the tit-lark, which sings little and ill; the wood-lark, which warbles better: the crested-lark, which has the most agreeable chant of all, haunts the sides of roads, and lives on insects and worms. This is the one too that is most commonly eaten.

THE STARLING.

THIS is a very lively bird, of a black plumage, spotted with white and other colours, larger than a lark, which is found in Europe and Africa, in pasture grounds, and in the vicinity of vines, where it subsists on flies, grashoppers, beetles, worms, and sometimes grapes and other berries. See Plate III. fig. 7. It nestles in the holes of oaks and beeches, and lays annually four or five eggs. About the vintage season, it is pretty large and good eating; but at no other period. It flies in flocks, and commonly in circles. Many of them are taken and reared, because they easily learn to repeat all kinds of airs, and even words. Sometimes they are confined in a cage, at others, they are allowed to fly about the apartment, to catch flies, gnats, &c.

THE THRUSH.

THERE are several species of thrushes more or less common in the kingdom: their plumage is in general brown and white, with reddish spots. They eat all kinds of berries and worms: and they are migrating birds, which arrive in spring, lay their hatch, rear four or five young, and leave us in autumn. There are likewise some that do not arrive till autumn, remain with us only a few weeks, and do not hatch in this country. When they assemble to take their departure, they are caught by thousands with different nets, into which they rush in quest of the berries of the misseltoe, which are presented them.

The following are the principal species of thrushes: The missel thrush is the largest, does not arrive till autumn, when the berries of the misseltoe are ripe, and sings tolerably well.

The red wing has only its cry zip, zip, zig, and has reddish wings: it is very fond of the grape.

The song thrush or throstle, is the one that sings best; its warble almost equals that of the nightingale. It has the breast white, and passes the summer with us, where it brings up four or five young: it then departs in large flocks. It likewise eats grapes greedily.

The belted thrush, which has a white stripe on the breast.

The reed thrush, which frequents marshes.

The juniper thrush, which arrives only in autumn, and subsists solely on the berries of the juniper and misseltoe. This species is very common in the mountains of Switzerland, and descends into the plains when the mountains are covered with snow, to eat the berries of the juniper, which give it an excellent relish.

THE BLACKBIRD.

THIS is the black-thrush (Plate VII. fig. 10), whose plumage is of a black colour, with only a little softening. The blackbird is tamed, and learns all kinds of tunes, which it never forgets: it likewise learns to whistle and also to speak. It also eats juniper berries, grapes, cherries, and winters with us, like many of the thrushes.

THE CROSSBILL.

THIS singular bird is not larger than a lark; its plumage is of a reddish grey, and that of the female of yellowish grey. What distinguishes this bird from all others is the shape of its bill, the extremities of which are bent cross-wise, or in opposite directions, a shape which is of use to it in extracting the seeds from fir-cones, of which it is very fond. Thus it frequents plantations of fir, where it builds its nest upon such as are thickest, of moss and small branches, which it glues together with resin from the same trees, and which it unites with the same materials, so that the wind cannot derange it. It chants tolerably well, and imitates the manners of the parrot when kept in a cage. Plate V. fig. 18.

THE BULFINCH.

THIS bird has the head black, the breast red, the back of a blackish grey; but, after being long confined in a cage, its breast turns a pale grey, as the female's always is (Plate V. 17). This is one of those birds that has the finest warble, and is the most susceptible of instruction: it is even said that the male chants as well as the female, which is rare.

THE GROSBEAK.

OUR grosbeak must not be confounded with foreign birds which bear the same name, or which deserve it better, on account of the disproportion of their bill to the rest of their body. This bird is very common in France, is a little larger than the chaffinch, and has the bill very large and strong, in comparison of birds of this size: thus, with this organ, it will crack with ease the hardest and strongest cherry stones, to eat the kernel, whilst it despises the cherry itself, directly the reverse of other birds. It likewise eats other kernels in want of those of the cherry, as also all kinds of grain.

THE YELLOW HAMMER, OR BUNTING.

THIS is a small pretty bird, about the size of a sparrow, of a yellowish colour, which haunts copses, hedges, bushes; eats millet, oats, and other small grains; and in winter, when the fields are covered with snow, approaches our houses in quest of subsistence.

Have you never seen any of them?

P. As to that, yes: we have even taken some of them, which we carried into the house, to keep them warm, and to give them meat and drink: but they always died in the course of a few days; perhaps because they were kept too warm?

M. Very possibly; but you have certainly never met with a species of bunting, well enough known, however, that is, the ortolan?

P. Ah! ortolans?

M. Yes, ortolans; how often has your papa told you, when you refused some dish that was not to your taste: wait a little my friends, till you be helped with some ortolans? they are in reality excellent little birds, whose flesh is most delicate, fat, and exquisite, but which is not common, or, at least, is only so delicious in the southern provinces of the kingdom, or other warm countries, where the birds live much on millet. They are taken in great numbers at a time, and sent to every place where they may be in request for the tables of the rich and wealthy; for they bear a high price, at least when fat.

There are likewise some other species of buntings, such as the reed bunting, the snow bunting: this last is a native of cold climates.

THE FINCH.

THE finch is almost as large as the bunting; its plumage is grey, mixed with yellow, red, green, black; it nestles upon trees and bushes, and eats all kinds of small grain. Some of the species sing charmingly, such as the gold finch, the canary, the linnet, &c.

P. Is the gold finch then a finch, and the canary too?

M. And the linnet also, and the sparrow; all these birds are reckoned of the family of the finch, because their shape and manners have much resemblance to it. As to the finches properly so called, there are likewise different species of them; for instance,

The beech finch, so named because it nestles on this species of tree. This is one of the singing birds that constructs its nest with the most art, of moss and grass, intermixed with hair and threads of all kinds. It makes use of a singular stratagem to deceive the birds of prey, that pursue it; it is, to conceal its head in moss or dirt, or even under its belly, at the same time raising its tail in the air, so that its enemy no longer knows it, or, if he do dart upon it, only carries off its tail.

The grey finch, which has the plumage of this colour, inclining to brown.

The green finch, which is almost solely of this colour.

The red finch, which has the breast of this colour, and where it is gilded of a beautiful yellow.

THE GOLDFINCH.

THIS bird frequents those places where thistles grow, and is frequently seen perched upon them picking the seeds. It nestles in copses and in bushes; its plumage is yellow, red, white, black, and brown; and is the one that sings best of all the finches. See Plate V. fig. 15. Thus it is frequently kept in a cage, where it is taught to earn a subsistence by singing. Alas, the poor unfortunate wretch! is it not even sometimes made a galley-slave of, so as to be compelled to draw up its water in a little bucket, and carry its hemp seed along a bridge, &c.? I am sure you have frequently pitied the poor little innocent slave.

P. Ah, yes! 'tis a pity! the poor little creatures that have done no harm!

M. Still there might be some excuse for this cruelty, provided their labour could be of any use to us, like that of horses and oxen. But for no end, but merely from caprice, to torment these poor birds, born to liberty and pleasure, and to bring back to us, by the songs which these inspire, that good homour which our own slavery had taken away! this is too much! some people must take great delight in exercising that authority over others which is exercised over them; and, in that case, they deserve a heavier yoke than that which has been imposed on them.

THE CANARY.

THIS species, that is named canary-finch, or simply canary, and which is represented in Plate

II. fig. 5, is in reality a native of the islands of that name, situate in the Atlanic, to the left of Mauritania; but it is now domesticated in our climates, where it breeds and thrives. Nevertheless, canaries are not seen flying in flocks in our fields as in their native country, where they wander in large flocks among woods of laurel and sugar plantations, eating the seeds of the sugar cane, or sucking the juice.

We can only breed them in apartments of a proper temperature, by taking care of them, and giving them hemp seed, carrot seed, oatmeal, sugar biscuit, and in summer some fresh vegetables. There are some canaries yellow, some citron, some whitish, some variegated, some have a tuft on their head.

THE LINNET.

It is also of the genus of the finch, and its plumage is sometimes brown, mixed with yellow, sometimes reddish: it has likewise a pleasant warble, and is frequently kept in cages, where it is fed on hemp seed, of which it is very fond.

THE SPARROW.

This is really a curious enough bird, and one which affords us some amusement; but at bottom is also an arrant rascal, an impudent thief, that leaves nothing in our gardens, or even our houses, that it can carry off. It nestles under the tiles, or in some hole in the neighbourhood, raises every year four or five young, and never forsakes our habitations. As to its warble, it is not the most pleasant; tchri, tchri, tchri; it repeats nothing else from morning to night; but when kept in a cage, it may be learned something better: and is susceptible of considerable instruction. What we have said regards the house sparrow. There are others that live in the fields, and nestle in the holes of trees, without frequenting villages; these are called field sparrows: they almost completely resemble house sparrows. See Plate III. fig. 10.

We may observe, in general, that these render us considerable services, by ridding us of vast numbers of caterpillars, grashoppers, beetles, and other vermin, whose increase is equally hurtful to us. But, on the other hand, we must likewise acknowledge that they themselves destroy a considerable share of what they saved us by that war which they carried on for our interests: whence we must conclude, that though we should spare them, we ought nevertheless not to be partial to them, particularly after the season for insects is past. Sparrows may likewise be eaten, they are tolerably well tasted.

THE WAGTAIL

The family of these pretty little birds is no less numerous than that of the finches: it comprehends the nightingale, the fauvette, the white breast, the brown, the black, blue, red, &c. they eat flies, gnats, worms, and are not eaten themselves, at least rarely. They are seldom kept in cages, because, the charming nightingale excepted, they are in general any thing but good singers.

The wagtails (called also *bergeronettes*), are distinguished by the length of their tail, which they are constantly moving about. They run little, nestle among the grass, and eagerly follow the cattle. There are some white, and some yellow, and some spotted, which are the most common in these countries (Plate XI. fig. 12).

THE NIGHTINGALE.

THIS bird does not excel in the brilliancy of its plumage; in this genus that is ordinary enough; but it excels all the winged songsters in the softness, and in the variety of its warble. It is rather longer than, but not so thick, as the sparrow, and of a brownish colour; it lives on ants, and the nymphs of ants, spiders, flies, worms, &c. and builds its nest of leaves, of straw and moss, in copses and in orchards, sometimes among garden strawberries, or other thick plants near the ground, as much as possible out of the reach of its enemies, which are men and birds of prey: it raises every year four or five young (Plate VI. fig. 14). It is during the laying season, the hatching season, and the raising of the young, that the male displays to his female all the richness of his melodious warble, attentive also to supply her with food, and give her notice of danger; labouring to the utmost to soften the hardships of brooding, which continues fifteen long days; during which period, the poor female scarcely leaves her eggs an instant, shut up in her dark nest, and deprived of the rays of the sun.

During the day, the nightingale sings but little, because he is afraid of discovering himself; nor is he fond of bustle; it is in the silence of the night that he prolongs his harmonious trill without end, and that he delights to awaken the echoes; as also in the evening and the morning. Farther, too, the day is destined to more important cares; he must provide for the subsistence of his dear family, watch and keep guard round their common retreat. He waits then to raise his voice in the silent woods, when other birds, hoarse after the music of the day, retire to seek repose; as soon as all is tranquil, he pours forth in his turn the richness of his artless music, nor does he cease till morning, when the turmoil of the day is about to be renewed. What person of feeling, if, by chance, he may have passed near his retreat, has not been ravished, while he listened to his song! he seems not so much to take advantage of the silence of nature in that still season, as to impose that silence himself; and a person would say that the animals ravished with his music were afraid to interrupt it.

It is truly difficult to conceive how the powers of so small an animal can be sufficient for such a powerful warble, and so long supported. Nor is one less surprised with the wonderful justness of his tones; sometimes his breath seems ready to depart, whilst it protracts the ravishing song: then, of a sudden, it bursts forth in a brilliant cadence, and is extinguished in the murmurs of a trill, infinitely diversified. Sometimes he suspends and breaks off his song in the middle of his modulations; and, at once, by an unexpected transition, passes to new strains, and always varied. Sometimes he seems to repeat his strain, and then, by sudden changes, kindles within us fresh raptures. Sometimes it is the torrent that murmurs gently along the bottom of a deep vale, at others, it is the shrill sound of the clarion and the hautboy. Sometimes he hurries and crowds his warble, by and by he slackens and lengthens out the amorous strain; then he awakens it anew, and carries it successively through all the degrees of the musical scale. In one word, nature appears to have formed the little throat of this charming bird, to produce, as if in sport, all the diversity of sounds that man attempts with so much labour by a combination of instruments.

Every person possessed of the least sensibility, provides an exquisite entertainment to himself, by repairing every night and morning to the obscure retreat, where this warbler alone makes the air to resound, for the three or four weeks that his melody lasts.

P. Only three or four weeks!

M. In reality, we think it short; but his warble is much more vigorous, more soft and varied, than when forced to sing in a cage thro' the whole year.

P. But, where do the nightingales stay? for we never see one of them.

M. True; real abilities shun the broad day: but, besides, he is fond of domestic happiness, and the cares due to his family confine him constantly to his obscure abode. Add to that, fear for his enemies; in the number of whom may be reckoned man.

P. But, who can be cruel enough to injure these charming little musicians?

M. Who can be cruel enough! too many, too many, truly! is any thing else necessary than a little paltry gain to make these unfeeling wretches lay the snare for our poor nightingale, and find means, in spite of his precaution, to catch him at last, to dispose of him to the wealthy, who would have every thing within their tiresome palace, instead of taking the trouble to repair to the verdant palace prepared for us by the Creator, to hear such exquisite music?

P. Well! they ought not to be allowed to keep nightingales in a cage, or in their apartments, since they will not go to hear them warble in the woods.

M. At least, it is certain, they do not deserve it. Thus, only go for a little to hear those unfortunate nightingales; you will perceive what a difference between the sad warble of these captives, and the sublime strains of the natives of the woods! Nature constantly baulks the rich when they would purchase her for money. I am very sure you would take a better method than that to enjoy the nightingale's music.

P. Ah, yes! how I would do? I would go into the orchard or the wood, I would not allow them to be caught, and, inſtead of that, I would carry them plenty of worms, ant eggs, flies, and every kind of thing that they are fond of; then they would all come and nestle in the orchard, and I should be serenaded every night; would not I, dear Sir?

M. Admirably, my young friend! you indeed deserve to hear our little charming musicians, and not these rich rascals

THE FAUVETTE.

THIS bird is smaller than a sparrow; its plumage is of a yellowish grey, spotted with different colours; it builds its nest on the ground among thickets and bushes, and it is one of those that the cuckoo prefers for depositing its eggs in. In other respects the fauvette resembles the nightingale in its manners, and can even imitate tolerably its warble, so as to have got the name of the tree nightingale, or wall nightingale, because it sometimes nestles in the holes of walls.

THE RED BREAST.

THIS bird, which is smaller than the nightingale, has the back brown, the breast red, and the stomach and belly white. It chants almost as well as the fauvette, and nestles sometimes in houses, sometimes in hollow trees, where it subsists on all kinds of insects. It approaches houses, especially in winter, and lives in society with man during that season. See Plate III. fig. 20.

The bluethroat is likewise a charming bird.

THE WREN.

THIS is the smallest of the European birds, for it is scarcely larger than a stag-beetle, its plumage is of a bright brown: it nestles in thick bushes, hedges, thickets, and feeds on all kinds of small insects. It likewise, in winter, approaches our habitations, and extends its little voice, which is far from being disagreeable, to a considerable distance. Plate II. fig. 14.

THE TITMOUSE

THIS bird is nearly the size of a sparrow; it nestles in woods on the branches of trees, or in holes of trees, and eats all kinds of insects, winged or otherwise, and even carrion, so that it is seldom used as food (Plate IX. fig. 15). Titmice have nothing that is pleasant in their warble, which is only a constant ti, ti, ti: but these pretty little birds are not the less useful, and deserve to be preserved in gardens, because they destroy the eggs and catterpillars that are found there, better than the most expert and active gardener can do: there are different species of titmice.

The black titmouse, or collier, derives its name from the colour of its plumage, particularly of its head; for, as it has likewise white and yellow feathers, it has also got the name of the mirror titmouse. Their dispositions are likewise a little bloody; for, not content with eating all kinds of carrion, they sometimes help to make away with their own brethren, when they see them weak or sick, by eating their brains. They nestle in the holes of trees.

The blue titmouse has much of this colour in its plumage. The crested titmouse has a tuft of feathers on its head. The long tailed titmouse has that part longer than others; this prevents it from nestling in holes of trees, like the rest; as that situation would not suit it, it therefore nestles on the tallest trees.

The purser-titmouse constructs its nest of the cotton of poplar trees, in the shape of a purse, with two openings, and suspends it to the highest branches of the pine and the fir. Many of them are found in Poland, in Hungary, and in Italy. The black and blue titmice are most frequent in our countries, where they are sometimes preserved in an apartment for destroying flies and gnats, They are fed with small nuts and cracked walnuts.

SWALLOWS.

SWALLOWS.

There are four principal species of swallows, to wit, the field swallow, or martin, the domestic swallow, the swift, the sand martin: as to the night swallow, called goat sucker, it agrees with this family only in its bill, its tail and the manner of its subsistence; which are not sufficient to rank it in this class

Swallows are in general black and white; they have the legs short and the wings long: nestle in houses near the roofs, in walls, in holes of marle and clay, in the sandy and elevated banks of rivers and of the sea. They lay annually five eggs at least, and feed on all kinds of winged insects, as bees, wasps, beetles. The most part of them retire on the approach of winter to warmer climates; but several likewise pass the winter in our countries, concealed in marshes, hollow trees, the clefts of rocks.

The field swallow, or martin, has the back black, the breast of a dirty white, and the belly and rump of a pure white; and builds its nest to the outside of the walls of houses, constructing it of clay and mud (See Plate IX. fig. 31). It has two hatches in the season, each consisting of five eggs; it delights in flying high, and is a very innocent animal. What is alleged against it is, chiefly the destroying bees, and particularly dirtying the neighbourhood of houses; because, their nest being small, they all come to the aperture to discharge their excrement. Nevertheless, we do not disturb them, and allow them to nestle in peace: and in some places the inhabitants have even a kind of veneration for them. It sometimes happens that the impudent sparrows possess themselves of the swallow nests, and lay their eggs in them. The poor swallow, incapable of dislodging an enemy stronger than herself, hovers disconsolate round the nest, and tries several times, by looking in at the aperture, to get rid of the intruder amicably: but, as the sparrow has seldom or never this complaisance, the swallow, at last piqued, revenges herself in a manner as pleasant as it is ingenious.

P. And how does she do then?

M. You know that her nest is built of clay and mud, with a small aperture: what method would you take in her place to get the better of this knave of a sparrow?

P. I! I would plaister up the opening to her, so that she should not get out for food.

M. Well! You have exactly as much spirit as a swallow; for that is the very thing she does.

The chimney swallow has the breast red, and the belly reddish: she likewise builds a nest of clay, of mud, and straw, and fixes it not to the outside of houses, but to the inside, to chimnies, to roofs, beams, and other convenient places. Frequently she fixes it to the window of a granary, or in a corner of the roof, and there amuses herself with her chant. She raises at two hatches eight or ten young, and only spends the summer in our climates; she departs in autumn, and returns in May, to take possession of her former nest, without mistaking or wishing to change it.

The wall swallow, or swift, which is of a blackish brown, likewise nestles in villages, but only in holes of the walls of churches and towers, that are frequently left there on purpose by the masons. This is the largest species of swallow; it can scarcely walk on the ground, and raises only ly four or five young annually. The shore swallow, or sand martin, makes her nest in holes in the ground, or in the banks of rivers, and of the sea, and seldom approaches our habitations. She has only one hatch ; and, during winter, remains concealed in her nest, in clefts of rocks, and in hollow trees, where she continues till spring in a kind of torpid state.

P. But, dear Sir, do they eat none, nothing at all, during all that time? or how come they not to freeze?

M. You have seen how the frog passes the winter, under water, without food, and is sometimes frozen like a stone, without dying in consequence of that. The swallow, perhaps, does not freeze, because it possesses more animal heat than the frog; but as, during its torpid state, it suffers no loss of substance, it necessarily follows, that it has no occasion to replace that by a fresh supply of food. As soon as the summer sun has awakened torpid nature, the swallow roused, leaves its hole, and commences, as in the preceding year, her pursuit of flies and other insects. The swifts do the same; and, as to the chimney and house swallows, they sometimes roll themselves up in a heap, clinging together by the feet and the bill, and thus drop into the water, where they continue during winter, without drowning or freezing; so that, in spring, they re-appear full of life, recommence their former pursuits and cares *.

P. Do they not rather go into foreign climates that are warmer?

M. Yes, a part, but not nearly the whole. However, whether it be in the passage of those that migrate, or in the torpid state of those that sleep,

---

* We have already assigned our reasons for disblieving this.

sleep, a great many of them always perish. Such as are in water are frequently eaten by rats, lobsters, fishes, and even by men, who take them instead of fishes. For this has happened sometimes, and, as the other was not known at first, occasioned a good deal of surprise: but when, after being properly warmed, they have been observed to be truly alive, we can scarcely doubt that many swallows winter with us, either in their nests, and other holes, or in water, rolled up together *.

There is in China a species of swallow whose nest is eaten. It is scarcely so large as a swallow, and has a spotted plumage. It frequents the coasts of China, of Tonquin, of Cochinchina, of Coromandel, of Java, of Borneo, and of the Moluccas. It builds its nest of the thick scum of the sea, of small fishes, and of the resin of a certain tree: these nests, which are very small, are transparent and yellowish: the Chinese are extremely fond of them: they have them boiled for eating, and some of them are likewise brought into Europe, where they make one of their chief dainties at the tables of the wealthy.

THE NOCTURNAL SWALLOW.

It is also called the goat sucker. This bird is nearly the size of the raven, whose croak it likewise imitates; its plumage is brown, with spots like that of owls. It nestles in thick woods, in barns, in stables, and in places that are little frequented, where it lives on moths, flies, beetles, spiders,

---

* Buffon is of opinion, that, if we could observe accurately enough these too fugaceous birds, we might discover that the migrating swallows, and those which continue in a torpid state, are two different species.

spiders, and never appears but in the twilight, morning or evening, flying about trees, houses, and stables, where these insects are most numerous. It is one of those unfortunate birds against which people have taken up a prejudice without knowing why; they have imagined that it did hurt to cattle, and even to men; and particularly that it glided into the folds at night to suck the goats.

P. But why imagine all that, if it was not true.

M. Ah! there are always some people who are fond of telling lies, and others who will rather believe and repeat these lies, than give themselves the trouble of ascertaining the truth; among this last class too we frequently find very able men, as *Aristotle*, for instance: he was a very learned man of Greece, who has written a book on natural history, above two thousand years ago; this story had been told him, and he believed, and has even published it. Above four hundred years afterwards, another very learned man, named *Pliny*, likewise composing a work on natural history, and finding the history of the goat sucker already written by so able a man as Aristotle, believed he could not do better than transcribe it into his own work; which also contains many excellent things, besides those taken from Aristotle. But, in this way, a story related by two such learned men has procured universal belief even till our own time, when we have had the courage to think that these old books did not always tell the truth; and, on examining things ourselves, have found that the goat sucker does not suck goats, does hurt to nobody, and is one of the most innocent creatures in the world.

THE

THE VIVIPAROUS ANIMALS.

M. Have not we already seen a good many animals?

P. Ah, yes! certainly; what a number of birds, of fishes, of insects, and of reptiles! There are not so many, dear Sir, of those that remain, as there are of those which we have already seen?

M. You are in the right: for we have already seen all those that are oviparous, that is, that lay eggs; and these are much more numerous than the viviparous, that is, that bring forth live young, which suck their mother, whilst the young produced from eggs do not suck, but are fed by the bill, as in birds, or are nourished otherwise, as in other animals, either by man, or by their parents: or else they nourish themselves, as we have seen among a number of insects, with the food prepared for them by their parents.

Here then the young suck their mothers, as you have seen to be the case with the cat or the bitch at your house; and, in one word, as we have done ourselves, you and I: do you recollect it still?

P. Ah, no! nor you either; do ye, dear Sir?

M. That also is longer ago; but we see how other children do, and we know that we must have done the same.

P. Thus we are of the number of viviparous animals?

M. Yes, my dear young friend, and we shall give your history, after having finished that of the dog and the cat, and of the horse and the ass, and of the ox and the goat, and others.

P.

P. But how does that happen? all these animals have four feet, and yet we have only two; and then these have hair or wool, and we have neither!

M. Worse than all that; for if I show you some others which have neither hair nor wool, any more than you, and others which have no feet, and others that have wings, &c.

P. Wings! . . . But are not they birds?

M. They fly at least. They only want to be covered with feathers, to lay eggs, and to have a bill, &c.

P. Wings, and no feathers! I suspect they must be bats.

M. I thought you would guess it. Thus you see we do not allege that all viviparous animals have four feet, or only two, or that they have all a tail or hair, or that they have any thing else in common, than the quality of being viviparous. For, in reality, there are in this order animals widely different, especially externally; since some of them live in water, as the whale and others of that class, others fly like the bat, others walk on two feet as man, and several of the apes. But they resemble each other much more in the conformation of some of their internal parts. For instance, they have all the blood warm and red, the heart with two ventricles and two auricles, and have breasts to suckle their young. And then, after all, how know we that there may not be in some part of the world men with a covering of hair, and that go on four feet, &c.

P. Heavens! but is that possible?

M. Undoubtedly many things are possible that would surprise us much. Still, however, it is true, that we see among ourselves many men that have a great quantity of hair, and are almost completely covered with it; on the other hand, the elephant, and the rhinoceros have scarcely a single hair, though they be large beasts with four feet. You yourself see that our hogs, instead of hairs, have bristles that are much harder; that the hedge hog and porcupine have prickles that are still harder and larger. We might also mention the manis which has scales on the back, and hair under the belly, and the armadilloes that are covered with a bony coat of mail.

The quantity of hair depends in general on the degree of cold that prevails in the climate, and on the degree of good condition that the animal is in. If it be fat, thick, fleshy, or if it inhabit a warm climate, it will undoubtedly have but little hair. Farther, animals that are covered with hair, moult every year, or cast their hair, as birds do their feathers; in the same manner as the hair that an animal loses by an accident is replaced in a short while by a fresh growth, if the animal be not too old, or if there be not some other impediment; for, otherwise, we should never see heads become bald.

Have you ever examined the hair of any animal, as of a horse or a goat? the structure of it is very remarkable. It is like a little plant with its root, through which it receives internally those juices that make it to grow; thus it is found hollow within, and composed of fibres and canals, though there have been disputes on this subject.

There are some viviparous animals, the females of which have only two nipples, situate either on the breast, or under the belly between the thighs. Others have six, eight, ten, and even twelve, ranged two and two, along the length of the belly.

P. And why have not they all the same number?

M. Because they do not all produce the same number of young at a time, which, as soon as brought forth, are eager to suck; for there is always milk in each nipple. The cow, for instance, brings forth only one calf in the year, whilst the female sow produces from eight to twelve pigs at once; and the female field-mouse from twelve to eighteen. . . . .

P. As to that, yes! I once saw a female sow that had nine pigs following her, and, when she halted a little, they got all under her belly, seeking a teat; and when they had got one, they pulled, pulled, with all their force. But how long must the mother give them suck?

M. Sometimes longer, sometimes shorter. There are some that suckle their young only fifteen days, some three weeks, others four or six; and all nourish their young till they be big and strong, capable of subsisting themselves, or of partaking of what is given to the mother.

P. And what is it then that is given them to eat, or what do those eat that are given nothing?

M. Every thing that the earth produces, and even every thing that subsists on its productions; for, if there be some that eat only vegetables, there are likewise some carnivorous that feed only on blood and flesh, and some too that use either the one or the other occasionally. The Creator, in replenishing the earth with animals, has provided for each its subsistence in the spot or country that gave it birth. Not one of them suffers famine in the midst of the icy regions of the north, or in the barren and sultry desarts of the torrid zone; all are equally satisfied, according to the wise appointments of Providence.

As to those that are frugivorous, that is, which live on plants, these have least difficulty; they know exactly the spot where grows their favourite food, or where to look for their appointed nuts or mast. It is true, that the carnivorous have some more labour; they are obliged to make use of stratagem, of address and force, to find out their prey, and to become masters of it; beside the patience necessary to watch and lie in wait for it. How long must the cat watch the mouse? and the wolf, how many stratagems must he use before he can seize a wether? frequently they are compelled to pass two or three days without food: bnt none of them die of hunger, some of them can even wait ten and twenty days without food, as the wild cat. It does not signify, their organs are adapted to it; they become thin and extremely famished, but still they do not die, nor even become sick in consequence of it.

There are small animals, however, that are formed for supporting fasting, and which yet, during winter, are compelled to pass several days, several weeks even, without food. These must either die then, or at least must fall into a long sleep, that may free them of the necessity for food: and this likewise is what happens to several, as the marmots, the porcupines, the bears, badgers, field-mice, bats, and others.--- What could they do in that season when every thing is, so to speak, converted into stone, when the woods and the plains are stripped of every thing, when snow and ice have covered the face of the earth in our climates? They take care in autumn to provide retreats for themselves in holes of the earth, which they line with moss, straw, hay; and there, as soon the frosts have deprived them of their resources, they lie down and fall asleep for six, ten, twelve weeks, and somtimes even longer, without wakening, till at last the earth be warmed anew, softened, and furnished with plants. On wakening, their first care is to take food. There are even some, as the field-mouse and others, that are so provident as to lay by provisions in their retreats, so that the moment they awake they find something ready to eat.

Among viviparous animals, some seek their food in the day, others during the night; some singly, others in troops. The wolf, for instance, commonly goes alone, whilst elephants, apes, beavers, go in companies, and live in society, consulting in common, assisting one another, and defending themselves together against the common enemy.

Flesh or plants, the aliments on which all animals subsist, must be broken and bruised more or less; and, for this purpose, the Creator has furnished them all with a kind of osseous instrument, or teeth, organs of a very singular structure, placed one by one in the superior and inferior jaws, and divided into the molares, or grinders, the incisive, the canine, or pointed. Carnivorous animals are armed with teeth sharp and cutting; frugivorous animals have them mostly flat; and such as live both ways have likewise the two kinds intermixed. Such is man; he eats of every thing. See also how his mouth is furnished! Have you never had curiosity enough to examine, with a little attention, your teeth in a mirror, and to count them?

P. Ah! how many have we then?

M. That is what you may know when you have a mind: we have not all, however, exactly the same number: they vary from twenty-eight to two and thirty. Among our companions too, the other viviparous animals, some have more, some fewer; the difference is from twenty to forty. I believe that the greatest number or the smallest, do not exceed these two terms, with the exception of one singularity, which is the wanting them altogether.

P. Is it possible? no teeth, none at all! what then is this exception?

M. There are two, if you please; at least, we are not acquainted with any more than these two species that want teeth, to wit, the devil of the island of Formoso, and the ant-eater: they both subsist solely on ants; their tongue, or their stomach, are sufficiently strong for bruising them, so that teeth would be of no use. You see how nature that appears so prodigal, so magnificent in every thing, is still exact in the distribution of her favours, and makes nothing that is superfluous! that she combines wisdom with magnificence. There are likewise some of the cetaceous class that have no teeth in the mouth, because they swallow entire the herrings and other small sea animals on which they subsist. But others of this class, as also the rest of viviparous animals, do not transmit the aliments to their stomach, till after having broken and ground them with their teeth, and thus begun the process of digestion, so that it may be the sooner completed, and they in a condition to receive more food. To eat much, and frequently, in that consists the greatest perfection of the most part of animals, of those called irrational; yet we never see any of them eat till they kill themselves, that is, till they choke, or till their belly burst: it is only the rational animal that has so little reason as to bring on itself mortal indigestions, in consequence of surfeits. What say you, my young friends? is there no young glutton among you?

P. As to me, I can eat no longer than while I am hungry.

M. That truly is a great secret! the rest, however, are wrong to laugh, in the main: you have expressed your meaning ill. You have not resolution to eat longer than you feel you have need; is not that what you meant to say?

P. Exactly, dear Sir, you have expressed it better than I.

M. That is exactly the very thing in which consists prudence in this respect. But then we only judge of this need by our appetite; now our appetite is often misled, and may also mislead us, if we do not pay attention. For these gentry the cooks give us such exquisite ragouts as constantly excite our appetite; and we think always we have need, till at last we perceive, too late, that these wicked sauces have played us a cruel and treacherous trick, by making us forget that our stomach had long ago enough, either in point of real need, or even for pleasure, if we must constantly separate this last from the former. Thus many people of experience, rather chuse never to taste sauces and ragouts, than to be led into a mistake so dangerous to health; and they feel the less difficulty in making this sacrifice, as being well aware, that these, even when eaten moderately, are not very wholesome aliments. In all this, we must be directed by reason.

P. Oh! I have enough for that, I am sure; and when all these high seasoned ragouts are served up to us, I shall not meddle with one of them.

M.

M. That is what I thought to see; but if you play the little philosopher thus, I am sure your papa will embrace you.

P. I believe it; for several times he has told me, friend do not eat much of that, or of some other thing.

M. There are certain species of animals that would not be exposed to these inconveniences, the ruminating, for instance.

P. What is the meaning of that word, ruminating?

M. It means properly chewing over again. These animals can swallow down at once a prodigious quantity of food; afterwards, when they are at their ease, and no longer grazing, they bring up the contents of the first stomach into their mouth, to chew them more accurately; after which these pass into the second stomach, and thence into the third, where they are still more completely broken down, till at last they enter the fourth, and are converted, by digestion, into a substance that nourishes and fattens the animal.

P. Four stomachs!

M. Just that number; but have you never seen animals that ruminate?

P. But, dear Sir, are they then oxen and cows, which constantly move their jaws, even when they have no food before them, or else when they are laid at their ease in the pastures? is that ruminating?

M. Exactly, oxen and cows ruminate; but there are likewise others endowed with this faculty, as camels, stags, rain-deer, which have also four stomachs, and hares, goats, sheep, which, however, have only one. Some other animals are likewise said to have several stomachs, and ruminate of course.

P. Horses ruminate also; do they not?

M. No, and we may satisfy ourselves of this from inspecting their dung; for we see that the herbage is not nearly so completely broken down as in that of the cow, and that perhaps is the occasion of the difference which we observe in the kinds of dung obtained from these animals. Several instances of men and women that could ruminate are mentioned; but this singularity may rather be considered as a disease than an advantage, unless it could preserve them from indigestions, as we mentioned lately.

Since we have mentioned feet, we may observe, that almost all viviparous animals have four feet; man only, with apes and whales, excepted *. Thus, whilst we have only two feet that serve us for walking and running, we have also two hands that serve us for a variety of purposes, which feet could not answer. Apes, on the contrary, have four hands, on which account they have been called *quadrumanes*; and these four members serve them for running, climbing, doing whatever they choose. As to whales, they have neither feet nor hands, and are obliged to move themselves by means of their fins, like fishes †.

The feet of all these animals have not the same, or nearly the same configuration. Some-

---

* Some people reckon certain species of serpents among viviparous animals, that of course want feet.

† I believe I have already observed that every method has its advantages and disadvantages. I leave to others to judge of this, which in reality seems to unite what are of themselves widely different; but are others more exempt from this fault, or can they be?

have them furnished with a horny hoof solid and firm. Others have them divided into toes that are shod with a hoof of horn separately, such as oxen and sheep. In a word, there are some which have several toes or claws, sometimes detached and free, as in dogs and cats; sometimes palmated or tied together by a membrane, such as beavers and otters.

Most part of these animals only tread on the point of the foot, whilst man, hares, and bears, and others also, walk on the whole sole of the foot. Some throw themselves to a great distance by leaping, as squirrels, and others, whose hind feet, being connected with their fore by a particular membrane, have the power of flying—these are the bats.

All viviparous animals have five senses, to-wit, sight, hearing, smell, taste, and touch; even the mole is not without eyes. The ant-eater, the devil from Formoso, and the mole, are absolutely dumb; but all the others can emit some sounds, or rather each a particular noise called their voice. We have not been able, however, to obtain from one of them, even those whose shape has the nearest resemblance to our own, the formation of a single word of our different languages, or of one air of our tunes, whatever pains have been bestowed with this view. Even the ape itself, that expert mimick, cannot copy us in this.

We see some animals carrying on their head horns simple and hollow, as oxen and goats; others have it furnished with a wood with several antlers or branches, as stags and rain-deer; lastly, all of them have the hind part furnished with a tail, except man, sloths, and some apes.

There are likewise differences among viviparous

rous animals as to the nostrils or nose. In most of them it is destitute of hair, but it is sometimes more, sometimes less obtuse; some have it turned upwards, others downwards, some longer, others shorter than the lips; in some it is converted into a trunk, that is prodigiously long in the elephant, but which may also be discovered in the lengthened snout of the hog.

Every quarter of the world presents different species of viviparous animals: however icy or however sultry its temperature, the Creator has furnished each with inhabitants, men or animals. The warmest climates of Asia and of Africa are peopled with black men, with apes, elephants, and lions. The frozen seas nourish sea dogs and bears, near those inhospitable coasts inhabited by the slovenly Greenlander and the nasty Esquimaux.

It is in temperate regions, however, where neither the cold nor the heat are extreme, that we find the greatest number of animals.

Of all the viviparous animals, the cetaceous are those alone that do not live on land, and the whale the only one that cannot leave the water, by the total privation of feet, and of every other organ fitted for its abode on land. Beavers, sea dogs, sea bears, that are web-footed, have the power of remaining at pleasure on land or in water. There are some, as the mole, that love only darkness, and that remain constantly underground, even in summer.

As to the duration of the life of these animals, the term is extremely diversified: in some, as in rats, it is limited to five or six years; in others it extends as far as fifty and a hundred, as in the elephant; and whales might easily live two hundred, if we were not at such pains to kill them

at

at an earlier period. For, thanks to the superior talents of man, there no longer exists a single species of animal in the world, however large, however formidable and well armed it may be, of which we have not contrived to become masters, either dead or alive.

P. But are they all good for something?

M. There is scarcely one of which we cannot make some use. Of some, we eat the flesh; of others, we procure the materials of our clothes; we harness some to our carriages, we load others with our burdens; one frees us from vermin, another watches in our court-yards and within our houses: lastly, there are many that we render subservient to our amusements. But it is true, on the other hand, that we have likewise some that do us more hurt than is compensated by any good we receive from them, and that prey upon ourselves or our domestick animals; in a word, that destroy every thing that falls under their fang. Still, however, we have always means sufficient to drive them away, and to defend ourselves, or even to destroy them, either in whole or in part. Happily for us we are not situate in countries where we have for countrymen lions, tigers, and hyænas. If we escaped ourselves, at least, we could not multiply at pleasure, as we do, oxen, cows, calves, sheep, wethers, hogs, goats, of which we consume such a quantity daily.

P. But are there many of those that are so wicked?

M. Fortunately not; the Creator has neither given them the instinct nor the powers of multiplying rapidly: in some species the number of individuals is very limited; and in general, the number of species in the class of viviparous is not very great. We do not reckon them by thousands, as we have seen in the other classes; we can with difficulty reckon four hundred. The smallest of the whole is the Siberian rat, with a sharp muzzle, and the largest the elephant, or rather the whale.

P. In this way, we must have but few classes of these animals, and not so many as of birds, or of fishes? must we not, dear Sir?

M. We shall see: for instance, to throw some little order into our arrangement, as we have already done with insects and others, it might not be amiss to group together such as are related to one another, either by their size, shape, manner of living; what say you?

P. Ah! yes, dear Sir!

M. Well! reckon on your fingers. The first class may consist of those that fly, or of bats; a second may consist of mice, and of all those animals that nibble, as rats, squirrels, hares, rabbits, &c.; a third of wild beasts that are carnivorous, as bears, tigers, dogs, cats, &c.; a fourth of animals that are single hoofed, or have the hoof entire, to wit, the horse, zebra, ass, &c.; a fifth of those that have the hoof cloven, as oxen, sheep, camels, &c.; a sixth of those that, instead of hairs, have the body covered with bristles, or scales, as hedge-hogs, *tatous*, *pangolins*, &c.; a seventh of those monstrous shaped animals, that have the body almost denuded of hair, or any other thing, as the elephant, the *tapir*, the Nile-horse, &c.; the eighth of those that have the feet webbed like those of a goose, as otters, beavers, sea-dogs: we shall still have the whales or the cetaceous animals for a ninth class; the ant-eaters and the sloths, and all the heavy footed; for a tenth, the ape tribe; quadrumanes for the eleventh;

venth; and, lastly, for the twelfth, what will remain *—Guess then! . . . . .

P. Man.

M. You have some difficulty in digesting the sirname of animal! you know well enough, however, that every animal is not a beast.

FIRST CLASS OF VIVIPAROUS.

BATS.

THE Creator said, let us make animals that shall be half birds, half mice; and immediately all the different species of these little creatures were seen flying about. They have not, however, feathers like birds, and we cannot even say that they have properly wings: they have the skin covered with real hairs, and what gives them the power of flying, is a very delicate membrane, like crape, continuous with the skin the whole length of the body, from the fore to the hind feet, which are in like manner both joined to it. It seems, however, as this organ was not sufficient to raise them to any great height: and though they fly rapidly enough, yet, to speak properly, they only flutter, something like young birds when they begin to exercise. They cannot run on the ground, because the toes of the fore feet are too long: at most they can, with the assistance of the thumb nail, which is short, crawl partly on their belly.

They are only seen fluttering about in the twilight, morning and evening, in summer, particularly in the fine fore nights, and in moonlight; the

---

* This is the arrangement of Professor Blumenback.

the light of the sun seems adverse to them. During the day they retire into all kinds of obscure holes, both in houses and in the fields ; on the approach of evening they come forth to pursue flies and butterflies, or else to enter by the chimnies into our houses, where they feed upon fat. But on the approach of day they disappear, and regain their obscure retreats. In winter, they gather themselves into a heap in holes, wrap themselves up in their wings as in a mantle, suspend themselves by the hind feet, and sleep thus locked together till spring, without waking and without food. Then at the return of warmth they revive by degrees, and quickly renew their former pursuits.

The common bat is rather larger than the common mouse, and its alar extent may be one foot. In Plate VIII, fig. 22, is represented a common bat flying. There are some still much smaller. It has, like the other species, five nails to each hind foot, and on the fore feet, it has only, properly speaking, a crotchet or hooked nail that serves to fix it on fat or other things it means to devour. The delicate membrane which composes their wings, is attached to the whole body lengthways, and is connected to the feet and the tail. But there are bats of a much superior size, especially in foreign countries. We have ourselves the long eared species, which, as you see in fig. 29, is of a very deformed shape : But let us consider that species that is the largest and the most dangerous.

THE VAMPIRE.

THIS bat is as cruel as it is hideous, and, according to universal report, sucks the blood of animals, and even of man during sleep. It is about the size of a squirrel, has a head resembling that of a dog, the face black, with long black hairs (Plate VIII. fig. 25), and, luckily for us, does not inhabit our countries, but only South America and the Indies, where it is seen to pass the evening in numerous flocks that darken the air, and cover the streets of the cities: a thing the more probable, as a large vampire, with extended wings, is full three feet in alar extent.

P. Mercy! but do these animals live solely on the blood that they suck?

M. Thanks to heaven not; otherwise the country would soon be depopulated of men and cattle: for such a blood sucker might destroy a man in a single night, as well by the quantity of blood it abstracted, as by what might issue at the opening it had made, after it had withdrawn. Thus, vampires commonly eat fruits; they are particularly fond of sucking the juice of the palm tree, but it intoxicates them to such a degree that they frequently fall on the ground as if dead: still, however, they give the preference to the blood of animals. On the arrival of night, they go through a whole district, in quest of some man or other asleep; as soon as they find one, they approach without noise, and, applying to the arm, or any other part that may be uncovered, their tongue furnished with sharp and very delicate prickles, they fall a pressing and sucking, so that the blood flows without awakening the person: then they satiate themselves at pleasure. They likewise suck oxen, cows, asses, horses, and all the domestic animals in the same manner.

P. But how comes it that people do not wake?

for that must give pain, and we often waken at the bite of a bug or a flea that are not so large!

M. These wicked animals are possessed of a singular malice and address, consisting in this, that, in order to prevent the sleeper from wakening, they fan him gently with their wings, and cool him: which, in such warm climates, is a great incentive to sleep. Nevertheless, people do occasionally awaken, sometimes whilst the wicked harpy is still employed in sucking, sometimes after it has just done: at this time they feel weak, overcome, sometimes weltering in blood, and at times ready to expire, as may happen, when the vampire has taken away too much. When this sucking has not been too copious, it may chance to supply the place of a useful bleeding, and prevent a disease, at least with those who are not at pains to render unnecessary those pretended bleedings for prevention: for it is only through idleness and gluttony that we have occasion for this troublesome and hurtful remedy. The worst of it is, that the vampire frequently enters houses by the doors, windows, chimnies, and falls a sucking people's blood even in their bed. During the day they lie squat in the holes of trees, and likewise upon trees, to which they suspend themselves by the hind feet, with the head undermost; so that, at a distance, one would take them for a parcel of cocoa-nuts.

No species of bats is venomous, nor even their flesh unwholesome; they may be eaten without fear, as both the Chinese and many of the Indians do.

SECOND CLASS OF VIVIPAROUS.

This is that of the nibblers, wholly composed of small species that have several toes on their feet, and rest almost constantly in walking upon the sole of the fore feet, as squirrels, rats, mice, dormice, marmots, gluttons, hares, ichneumons, and many others. The mouse is the smallest, and the glutton the largest of this class.

All these animals live almost solely on plants and fruits; few of them are fond of flesh or carrion. As to ourselves, we obtain good furs from their skins, and farther, we use them for food.

P. Rats and mice likewise?

M. Why not? they have been eaten oftner than once, without doing any hurt. There are even countries where rats, mice, and serpents are brought to market, in the same manner as we take thither pigeons, hares, and pullets. It is likewise extremely probable, that, if we would make use of the skins of mice and rats to fur our caps and cloaks, we should find it just as good as another. But we are never content with what Providence gives us without trouble; we prefer the furs of rats of foreign countries, because they go by a different name.

THE SQUIRREL.

This is a very pretty little animal that we are fond of keeping in a cage to observe its diverting gestures. It is found in all the countries of Europe, as also in almost all Asia and South America. It lives in woods, upon trees, where it subsists on nuts, acorns, wild berries, the buds of trees ; it does excellently with almonds, chesnuts, and walnuts, when it can get them. But peaches and apricots are poisonous to it. You have two of them represented in Plate VII. fig. 4. and 18.

P. Where is it then the squirrels make their nests?

M. Upon trees likewise, for instance, on oaks and firs, and sometimes in holes ; it constructs it of small branches, arched above to defend it from rain, and lined with moss and leaves. As it is much afraid of wind, it leaves only a very small aperture in its nest, no more than is just sufficient to allow its entrance. And if the wind should happen to blow exactly from the same quarter on which its hole is, it instantly blocks that up, and makes another on the opposite side.

P. And in winter, how does it manage? does it sleep the whole too?

M. It is a little animal constantly awake, alert; but with all that possesses much foresight. As it does not pass the winter in a torpid state, it takes care to lay by a store of nuts and beech-mast in some hollow tree. If the winter prove long, and its store be consumed too early (which happens but seldom), it can scrape very well under the snow, and there finds other nuts or beech mast on the ground : it likewise eats the young shoots and buds of trees: so that it is never liable to suffer famine.

It is really pleasant to observe this little animal clambering on trees with an agility and ease that would make it be taken for a bird ; leaping from one branch to another, from the trunk to the top, sometimes high, somstimes low, and even from one tree to another, without coming to the ground, by leaping to the distance of ten, fifteen, twenty feet, and more. Squirrels are sometimes seen in the woods pursuing one another, always upon trees, with the swiftness of a bird, as if they only glided along a smooth surface: in a moment they are out of sight, and, when we thought them within ten paces, are already beyond the reach of our eye. Thus, it is extremely difficult to take squirrels alive, and we frequently lose both our time and pains running after them.

If you should by chance discover one on the ground, the knave has already discovered you; pshaw, it is on a tree, on ten, twenty, a hundred; you no longer know where it is.

P. And how do people contrive to take such little rogues?

M. If we only wish for them dead, we accomplish our purpose by firing on them with a gun or with an arrow; but if we want them living, we must set springs and nets.

P. But wherefore do people kill them?

M. They are not bad food; their flesh is well flavoured; but it is particularly for their skin, which is made into furs and borders. I need scarcely mention to you their colour, which is sallow on the back, and whitish under the belly, in our squirrels: but, what you are not acquainted with, there are some in other countries blackish, or altogether black. In Russia, in Norway, in Sweden, and other northern countries, squirrels become grey during winter, and these furnish the dearest and most valued fur; this is what is known by the name of the grey squirrel.

The long hairs in the tails of squirrels serve painters to make their pencils. This tail is longer er than the whole body of the squirrel, and it generally turns it up gracefully on the back, where it looks like a large tuft; but it is only when seated that it makes a kind of umbrella of it, and thence seemingly comes its Latin name, or rather Greek, of sciurus, skiouros, which means tail-shadow. When walking, or running, or leaping, it carries it hanging. We are told that the squirrel is likewise a little navigator, and that it uses its tail by way of sails, when obliged to cross any place where there is water: for, as it is not fond of being wet, it does not fall a swimming like other quadrupeds, but gets upon a small piece of wood or bark in form of a boat. Alas! how often must the poor bark be wrecked, especially if the wind gets a little too high, or the water too rough! and what then becomes of the little pilot? all is lost.

There are squirrels in America two or three times larger than ours, and which are nearly equal to the size of a rabbit. Some are likewise found in Poland and Russia that have the hind and the fore feet connected by a thin membrane, which forms a kind of wings resembling those of bats, by means of which they can throw themselves to the distance of a hundred feet, or even two hundred, but not fly, nor even flutter, particularly so as to raise themselves. They are named, however improperly, flying squirrels.

The squirrel is a small animal, very fantastical, very restless, very timid. The instant that a person strikes the trunk of a tree where it has its nest, it comes out immediately, and does not stay a moment longer; it brings out its young, frequently to the number of four, and gets to the top of the tree, or leaps to another; and from

tree

to tree soon finds itself out of the reach of its enemy. When eating, it does it very neatly, seated on its hind feet, and using its fore ones as hands, like an ape, to hold its nuts, whilst it gnaws them, or to carry the morsel to its mouth. Thus, people take pleasure in keeping squirrels in a long chain, or in keeping them in apartments in cages made on purpose. They are very cleanly animals, constantly employed in cleaning, adjusting, arranging their person, like some amorous girl. They do not live above eight or ten years.

P. How much we should like to have one in a chain!

M. That is not difficult to be had; but it is a little nibbler that spares nothing and tears every thing, clothes, linen, wainscoat, drawers, tables; and the moment it gets the opportunity, it is gone for ever: it finds itself always more comfortable in the woods than in the most splendid prison.

THE FAT DORMOUSE.

THIS little animal has much resemblance to the squirrel, almost of the same size, of the same manners, and nestling in the same manner, in woods, upon trees, where it clambers very neatly, and leaps from branch to branch. It likewise eats beech-mast, nuts, walnuts, wild fruits; and if it can get a hold of any small bird, it will make a very good shift with it. It has the back grey and the belly white, sometimes builds its nest in the holes of walls, commonly in hollow trees, of moss and leaves, and the female brings forth four or five young. It does not live above eight or nine years. See Plate X. fig. 17.

The fat dormouse sleeps during winter, and, after retiring to its hole in autumn, and rolling itself close together, it falls into a torpid state, not to waken till May. It sometimes happens, however, if previously to this period, and even in the middle of winter, if there be a few fine days, when the sun has warmed the earth a little, the dormouse awakes, and leaves its hole in quest of food; it then returns and sleeps out its full time *. If it be kept in the house during winter, it does not fall into a torpid state, but continues to run and eat like a cat or dog, or any other domestick animal. But if it be placed in too cold a part of the house, it rolls itself together, and grows torpid, just as it would do in the hole of a tree, to such a degree, that it may be handled, shaked, squeezed, even rolled on the ground, without it either feeling or wakening. However, if it be pinced, or pricked, or burnt, it seems to feel it; for it contracts or draws itself together, and sends forth a hollow cry; a proof that the motion of the heart still subsists. But it is in vain to prick it severely, it never wakens completely. Besides, if brought near the fire at this period, instead of wakening, it dies; so that, to bring it out of its lethargick state, it must be approached to the heat only by degrees.

The ſkin of dormice is likewise used as a fur, and their flesh is good roasted, as also with sauce: they are eaten not only in France, but also in several

---

* The observations of Buffon seem to prove, that dormice and other animals that sleep during winter, are of the species called cold blooded, that is, the degree of whose heat is greatly under that of the human body. He has ascertained, by the thermometer, that the blood in dormice is only of the same degree of temperature with the air, sometimes even a little under it.

veral other countries, as in Italy, in Spain. In *Carniola*, the inhabitants take them by thousands on the approach of winter, when they are large and fat, to salt them and use them for food during the whole winter, as we use powdered beef or pork. The ancient Romans considered them as delicate food, raised them in great numbers like rabbits, and fattened them, to be presented at the beſt tables. They are scarce, or not to be found in the colder climates; they prefer such as are temperate

THE GARDEN DORMOUSE.

THIS is nearly as large as a rat; it has the back black, the belly white, and the tail long, furniſhed with hairs. It frequents gardens, where it nestles in the holes of trees and of walls, sometimes even in houses: it likewise frequents woods. It clambers upon trees and buſhes, and eats or gnaws all the ripe fruits that it finds, particularly peaches and apricots, of which it will sometimes plunder a whole tree in a day, transporting to its hole what it cannot eat on the spot: pears, apples, nuts, even pot-herbs, all suit its taste; and a very few of these free-booters will lay a garden waste in a short time. In the woods they must content themselves with walnuts, beech-mast, and hazel nuts: they are particularly fond of the last, so that we most frequently find them on hazel trees. They are very common in France, more so even than the fat dormice, of which they often get the name, that of garden dormice being less known. It is remarkable, that, though they eat only good things, their flesh has a bad smell; thus it is good for nothing: even their skin is of a bad quality, so that, after all, these little knaves do us much damage, without being fit for any use.

THE COMMON DORMOUSE.

THIS (Plate X. fig. 4.) is smaller than the former, and is not larger than a mouse; it is a pretty little animal, with a reddish coloured body, a long hairy tail, and not near so destructive as the former. It inhabits woods, nestling in hollow trees, or in thick hedges, particularly too among hazel trees, of which it prefers the fruit to that of the oak or beech. Common dormice are not very plenty, and are not eaten.

THE MARMOT.

A live marmot! a curious animal! ha ha! . . . . . ah, so you laugh at that!

P. It is at your mimicking the poor *Savoyards* so well, dear Sir; you want only an old cymbal to play gnan, gnan.

M. Yes; and the marmot on my back, to make it dance on the middle of the street to amuse you!

P. But can marmots really dance?

M. Alas, the poor creatures! by means of the stick they are taught more than they have inclination or occasion to learn. They are made to hold by the end of a stick, whilst it is turned and twisted without their letting go: they are made to stand on end, walk on their hind feet like bears;

they are even trained to clamber up chimnies, and sweep vents; in short, their is no childish trick that they are not taught by virtue of the cudgel.

P. Ah, that must be fine to see a chimney sweeped by a marmot! in that case, the little *Savoyards* will not need to get themselves as black as little devils.

M. Yes, yes! when a marmot is set to sweep a chimney, it is only for a joke; for it cannot do it so exactly as is necessary: but it is said the *Savoyards* have learned from it the art of clambering, which they are so dexterous at. The marmot is the size of a cat, with reddish hair, having the shape of a bear in its head, feet, and claws. See Plate VII. fig. 1. It inhabits the mountains of Switzerland, of Savoy, of Italy, Russia, Poland, near perpetual mountains of ice and snow, concealed in holes under ground. This animal eats every thing we give it, or that it can lay hold of, herbs, roots, meat, bread, vegetables, beetles even, and grashoppers. But it is fonder of butter and of milk than of any other thing; and when the marmot can get this last, it drinks it with so much pleasure, that it grumbles or murmurs for joy, in the same way as the cat, when devouring in a corner a bit to her liking. It repeats this expression of pleasure every time that we give it any delicacy, or even when caressed; and this has probably procured it the name of marmot.

It likewise sits on its hind paws like the squirrel, and, like it, uses its fore ones to carry to its mouth any thing it has a mind to eat. It runs very fast up a hill, but very slowly on level ground. On the fine summer days, marmots leave their holes in troops, and divert themselves with sporting on the moss and on the turf, with clambering up short trees, and throwing themselves down, or with a thousand curious sports; but, during all that time, there is always one of them standing sentinel, that gives them notice by signal on the approach of any danger.

The female brings forth yearly four young, which she suckles till such time as they be strong enough to eat herbs and roots; she then leads them out of the hole, conducts them to the pastures, and teaches them to distinguish their food. But she takes care not to lead them too far off, so that she may the sooner retire with them in case of danger; which does not prevent, however, a great many of them being caught on the road; for, without them, the poor Savoyards would want a capital resource in their travels through every country in Europe. It is a little animal that is as easily tamed as a cat; that runs up and down the house, and comes at a call, grows so familiar as to eat out of one's hand, and to sleep in one's bed. But a dog and marmot are still worse than a dog and a cat; a marmot can suffer any thing in a house but a dog; it is the very animal at which it has an antipathy. However, though a marmot does not hurt any person, it is too fond of gnawing, and damages every thing that we are not careful to keep out of its way, clothes, books, papers, and even furniture, to such a degree, as to make holes through doors and partitions.

With all this, the marmot is still fondest of its native wild Alps, enjoying full liberty, and wanting for nothing. In this situation, it chooses its hole at pleasure, along with other marmots, old and young, carries hay and moss into its hole, and there squats in September or October, not to come out again till April or May, after having slept the whole of the interval.

P. But wherefore do people say: sleep like a marmot? do marmots likewise sleep when trained in the house?

M. It sleeps then only like other domestick animals, even in winter, at least it does not fall into a torpid state. During all that period, however, it seems always inclined to doze, and it is easy to perceive that waking at that season, is not its natural state; from hence too, it may be presumed, that, of all the animals of this class, it is the most sensible of cold.

There are some good people that seriously believe, that the marmot, afraid of putrifaction taking place in its intestines during the long sleep it is about to commence, takes care, when about to shut itself up, to empty its stomach well, by going to drink at the first spring a quantity of water, which it throws up, repeating the operation till the water comes clear off its stomach. This is a story of some of the good women that wants confirmation. But what is very certain is, that, before it falls into its torpid state, it blocks up the entry to its hole, so that nothing can penetrate, after which it rolls itself up in a ball, and gradually grows torpid.

These holes are sometimes very large, sufficient to contain at once six, ten, twelve marmots; they are likewise of a singular construction that sufficiently bespeaks design. They consist of a long canal dug in the ground, to which is connected two other smaller canals or galleries dug oliquely: this gives the whole the shape nearly of the letter Y, or of a fork of two prongs; the first of the prongs represents the canal of entrance; the second prong, which is situate lower in the ground, serves the marmots for depositing their excrements, so that the moisture may not affect the bottom of the gallery, represented by the body of the fork, and where they lie. They line this place strongly with moss and with hay, which they cut themselves, and carry thither in summer.

P. What? carry! do they likewise make carts?

M. Can nothing be carried without carts?

P. They perhaps take a large piece of the bark of a tree, which they load with hay, and afterwards drag to the mouth of their hole?

M. I really believe your marmots would have more sense than those whose history we are relating: for their (supposed) method does not equal that which you have found out. This, as is said, is their method. They make one lie down on its back, with its four feet straight up, in the form of spokes, whilst the rest are busy in loading its belly with hay and moss: it then grasps its load closely, and the others begin to drag it by the tail, whilst some attend on the right and left to prevent the carriage being overset. When arrived at their abode, they unload and line their apartments. . . . . . . Well why? you laugh? I suppose you believe as little of this, as of the story of the emetick to wash its stomach?

P. They had better each take a good handful in their mouth, and run two or three times in this way; had not they, dear Sir?

M. So you mean to say that the load carried by a marmot betwixt his four legs would not be equal to the mouthfuls carried by the whole of those that are employed in dragging and conducting the carriage: so that these foolish carters would employ their time and pains to do less, which is not the common method of nature in

the

the instincts conferred upon animals. This is what is called reasoning, no doubt! but you have never seen, much less examined carefully, marmots: you might otherwise have observed that all of them have their backs peeled. What say you to that? now these backs must be peeled by rubbing on the ground: in order to be rubbed on the ground, the marmots must of course be turned on their backs and rubbed: but why turned on their backs, if it be not for the purpose of loading them with hay between their legs, and how rubbed when turned, if it be not by being dragged by the tail? you see how clear and proven this matter is.

P. Yes, but, dear Sir, have all the marmots their backs peeled, even those that draw and conduct the carriage?

M. I understand you: but every one takes the carriage in its turn; for, in short, it is no very pleasant routine, and, among good fellows, each must take his share; nothing more just. I think, I have you, for this time . . . . . . What say you?

P. But, dear Sir, might not the marmots peel themselves in going in and coming out of their holes?

M. Goodness! the little fellow, he must be a conjurer, a little magician! to find out that marmots, which pass their time in digging holes in the earth, and of course inevitably rubbing their backs against it, must have their backs a little peeled in consequence! ah, my dear little fellow! the greatest naturalist of our age, at least of our country, has not been able to advance any thing more to explain this partial baldness of the back of marmots. That is as much as to say, you do not absolutely believe the story of the carriage? However, tell me now, will you have the assurance to give the lie to a learned man, who took the trouble of writing, near two thousand years ago, the whole story of the marmot's harvest, and of the carriage ? it is the great Pliny, whom we have already mentioned.

P. Yes ! but, dear Sir, you did the same by him yourself, in giving us the history of the goat suckers, and also by another still more ancient, called Aristotle : and you observed, that they could not see all, to ascertain every thing that was related to them concerning animals !

M. By the way, we cannot but think that they were wrong in writing all these histories, without taking notice of what seemed doubtful to them. You see that Buffon himself, has, with the greatest modesty, offered the same reflection as you have done, for fear of injuring that respect due to so great a naturalist as Pliny, who, however, is not greater in that respect than Buffon himself.

P. But, dear Sir, do you believe that marmots make themselves be dragged by the tail to carry hay.

M. No truly ; but, in combating what appears to be ill founded, let us speak respectfully of every body, particularly of the dead, who cannot defend themselves. To conclude with marmots, it remains to observe, that they are pretty numerous, and that they live nine or ten years. They may be eaten, and are both fat and well tasted, according to the Savoyards, who consider them as a regale. They are in best condition at the beginning of winter ; at that time, they weigh so many as twenty pounds ; and it is likewise on the first colds that they are easiest taken, because that is the very period when they grow torpid with all their fat. The Savoyards come and take them in their holes, and smoak or salt them for winter; besides which, they dissolve the fat, to use instead of oil, and employ the skin for all kinds of purposes, as furs for clothes, caps, for muffs, knap-sacks, &c.

THE FIELD-MOUSE AND THE LARGE FIELD-MOUSE.

The field-mouse is smaller than a rat and larger than a mouse, and inhabits only fields and woods. It has the eyes prominent, the back of a reddish brown, the belly whitish. It makes large magazines of acorns, nuts, beech-mast, of which we sometimes find a bushel in a single hole: thus it frequently does much damage to young plantations. The female produces oftener than once in a year, and frequently nine or ten young at a birth. Field-mice eat birds, mice, and even one another, in case of scarcity. They inhabit almost all Europe, where they have for enemies, wolves, foxes, birds of prey, and even other field-mice; for the large eat the small.

The large field-mouse is larger than the common field-mouse, without, however, being of the genus of rats. It has the hair red, the tail very long and naked, the spine of the back arched like the squirrel, but the body much thicker, and whiskers like the cat. The female has as many as three births annually, and at each, from eight to ten young. The male in particular is very wicked, and his bite not without danger. It spends the summer in the fields, and in winter retires into barns, where it makes infinite havock, after having, in the first place, however, expelled the rats and mice. The old males continue in the fields, in holes well stored with proviſions, and whence they come forth in the fine winter days. It is only since the middle of the present century that this destructive animal has been obſerved in France, particularly in the neighbourhood of Paris.

THE GERMAN FIELD-MOUSE.

It is of the size of a rat, has the feet white, the back reddish, the belly black*, the tail short and naked, and lives among fields of grain, in large burrows, which it digs. There it lives the whole summer and autumn upon corn, rye, barley, oats, pease, French beans, vetches, lentils, lint-seed; but, in spring, before the leguminous plants and grain shoot, it contents itself with other plants of all kinds, and even hunts mice and birds. You have two represented in Plate VI. fig. 15. one of which is represented coming out of its hole.

In Bohemia, Silesia, Poland, Hungary, Russia, this animal is very common; but there is perhaps no country in the world where it is more frequent than in the principality of Gotha, in Germany: they are taken there by thirty and forty thousand at a time, beside what are destroyed by foxes, weasels, martins, owls, cats, and dogs, and even by themselves, for they kill one another; and, without this destruction, the inhabitants would not be able to gather in a single bushel of corn or other grain: an old knave of a field-

---

* This is perhaps the hamster of the Germans that is arranged under the genus of marmots, or the *cricet* (rather criquet) of Strasburgh.

field-mouse carries off for himself alone, three, four, five bushels of grain, pease or beans, which he stores in his hole. Frequently the harvest is trifling, and after them the inhabitants have only to glean.

P. But can they not destroy them entirely these robbers.

M. Yes! go and seek them five or six feet under ground: and then they are animals that breed prodigiously, insomuch, that a single male and female will, in the space of three years, have an offspring of above seven thousand.

P. At least they ought to seize their magazines, to make them die of hunger.

M. They do not fail to do so when they have it in their power, and to prevent themselves dying of hunger. But it is in vain to seek, dig, find out even a number of these magazines; there are always a great many that cannot be found out, as there are always a number of these animals that cannot be taken, though they are taken by thousands. In spite of the attention of government and care of individuals, as well the peasant as hunters kept on purpose, the species is scarcely observed to be diminished, so far from being totally extirpated. But it must be confessed that the interference of government frequently frustrates these views, and produces an effect directly contrary to what was intended; and this always, through its own fault, whether ancient or modern. The poor people employed in this search would be very sorry that the whole race of field mice were destroyed, or even nearly so.

P. And why so, since the field-mice eat their bread?

M. Not at all: on the contrary, the field-mice give them bread which they would not otherwise have.

P. Are there people who have no bread?

M. Ah! my dear friends! if you knew how many people are so unfortunate, so much to be pitied, that they are not capable of procuring either for themselves, or their poor family, only a sufficient quantity of coarse bread! I will take you to see them, you shall go with me into the cottage of the poor, and you shall sigh with me at their misery, at their helpless condition, at their numbers, and at the utter impossibility of us, or other individuals, assisting them sufficiently, and, above all, we shall weep scalding tears at the indifference with which governments treat, or rather neglect, a prodigious number of those whom they call their children, that is of people whose fate is in their hands.

P. But wherefore do they leave them without bread?

M. And without clothes, and without a place of abode, and without any of the things necessary to the life of a citizen. Do you know what is done? When those who have taken every thing from them, find themselves plagued with any considerable enemy, as, for instance, field-mice, which carry off the grain most unmercifully from the lands of the rich, and which these gentlemen think themselves of too much consequence to make war upon themselves, they say, with an air of disdain; "Come! let us be generous and "benevolent! how many poor people do we see "dying of hunger beside our granaries; let us "suffer them to get a morsel of bread to-day; "let us employ them to hunt and destroy the "field-mice, that would make us as poor our-"selves, as these wretches! fortunately for them, "this task occurs." . . . .

P. But, dear Sir, if this task did not occur, would they suffer them to die of hunger?

M. Not only would they suffer them to die of hunger, but would also reproach them with not working; and these poor creatures would be repulsed, maltreated even at the time as imposters and vagabonds! Such is the reason that they are at no great pains to destroy the field-mice in the principality of Gotha. These poor creatures know, that, when there shall be no more field-mice, they shall be used no better than field-mice themselves, or like a kind of vermin that seek to prey upon the riches of the wealthy: thus, what can they do? Instead of taking all that they can, they allow several to escape, and even restore to liberty several already taken, so that, in the succeeding year, there may be work for them, and consequently bread. When engaged in this business, they make bread for themselves of those collections of grain found in the holes under ground, or, if it be pease and beans, they eat them: they likewise eat all the field-mice they take (for they do not suffer many of those that are large and fat to be taken); and, after eating the flesh, they sell their skin: now this sale likewise affords something considerable, since a good skin will sell for two or three pence.

P. But what method would be necessary to destroy field-mice altogether?

M. It would be necessary that these poor people should not be employed like strangers in an accidental service to others who were strangers to them, and who, after the task was over, despised them, insulted them, and left them to misery.

But to return to the field-mice; they remain quiet in their holes during the day, and come forth only in the evening to plunder. Then they cram the holes of their cheeks with whole ears of grain, and with whole pods of the leguminous, then haſten to their holes, where they pick them properly, lay by the grain in their magazines, and throw out the pods and chaff. They continue this practice till such time as their granaries are full. At last, when harveſt is finished, and the fields plundered, they shut up the entrance to their holes, and live without care in the middle of their provisions, which are more than sufficient to ſerve them through the winter, and till next harveſt. Besides, they likewiſe continue torpid a part of the winter, lying softly upon beds of moss and chaff which they have made, and without meat or drink, according as the winter is ſevere or has mild intervals till the spring. As soon as they waken in March, April, or May, they open the mouth of their holes, and go to the fields in quest of herbs and roots, which, with mice and birds, when they can catch them, enable them to wait till the harveſt season.

P. So the field-mice do not sleep so long as the marmots?

M. Far from it; commonly the field-mouse wakens at the end of two or three hours, frequently even before it be carried to the house. It is pleasant enough to see it waken by degrees in a warm apartment. When pinced, or if its legs be pulled, it turns and re-turns itself curiously, opens its large mouth, as if to yawn, and makes a disagreeable rattle in its throat, continuing one or other of these, till at last it opens its eyes. Then it appears as if intoxicated or stupid, making different efforts to stand while its legs will not bear it, so that it always falls down again. At last, by a strong effort, it comes to stand on its feet, and then it remains some time at rest, as if it wished to take breath after a great labour, or to consider what had happened to it; but after having done with these reflections, it begins to arrange and to rub itself, then to run and seek food.

It is a small animal very cross, very peevish, that bites, quarrels, and fights with all animals that come in its way. It is scarcely a span long, and yet has the audacity to defend itself against dogs and cats, as well as against other animals still larger, and even against man. As to the rats and mice that it meets with, it kills them constantly, and swallows them with the hair and skin: and if it even fall in with another field-mouse on its road, that is weaker and does not get out of the way, it serves it in the same manner. If it finds itself engaged with an animal stronger than itself, it does not yield on that account, but defends its hide with all its might. But when found returning from plunder, its cheeks inflated with grain and peas, at this time a child may take and kill it without difficulty, for it cannot bite. As to running swiftly, or clambering neatly, that is not its excellence.

P. How is its hole made then?

M. Very curiously; the male on one hand, the female on the other, and the young on another; each has his subterraneous abode apart, with particular passages for entering and going out; in short each has his own particular magazine, and none shares his provisions with his neighbour. The male commonly digs six feet into the ground, the female a foot more, and the young are satisfied when they have got an apartment dug two feet deep the first time. The female rears her young alone, which are brought forth blind and naked, and do not open their eyes till the end of the fifth day, sometimes only at the end of the ninth ....

P. Ah, ah! we thought that only young dogs had been born blind.

M. Have you never seen young cats? all the animals that nibble, and even many others, are in the same situation.

THE LEMING.

THIS little animal, also called the Norwegian mountain-rat, is sufficiently remarkable, particularly by the long voyages which it undertakes, in countless numbers, of sixty, a hundred, a hundred and fifty leagues distance and more, eating and devouring every thing that it meets with on its rout. These emigrations resemble almost those of the herrings, or pilchards, which we have already mentioned, particularly in this, that these armies of rats are constantly followed by a number of bears, foxes, and other animals, which feed on them, and destroy them in great numbers.

The leming, or lemmus (Plate XII. fig. 31), is a little larger than the German field-mouse; it has the hair red, spotted with black; eats grass and moss, and inhabits the mountains of Norway and of Lapland, where it digs a hole, like the mole, for itself, the female, and its four or five young.

As these animals multiply rapidly, and at last want room, they make numerous emigrations, and go to seek their fate at a distance in a foreign country. These are constantly armies of twelve or fifteen hundred thousand strong, that march in a straight line, and subsist by laying waste on their route, fields, meadows, gardens, corn, hay, &c. Judge what pleasure it must be to the Norwegians or Swedes, when this visitation arrives on their lands, or rather what must be their terror! thus, since the time it was first observed, people have never been able to imagine whence such a prodigious number of rats could come, and they are still of opinion, that they fall directly from the clouds, as a plague sent by the enraged Divinity to punish their country, so that they have prayers and ceremonies established for exorcising them, if they choose to be sent away by charms.

P. But why do they not send armies of cats to face them.

M. Ah! these are little mad animals, against which there is no contending; nothing frightens them, neither dogs, nor cats, nor hogs, nor sticks even, or other arms. They will not even quit their straight march; nor will they turn aside for any thing. If they meet with a man, they endeavour to get thro' between his legs, or over his feet: if a stick be presented to them they bite it: if they meet with a rick of hay or corn on their road, they do not change their rout, but fall a digging and gnawing till they make their way through it; if it be a heap of wood, they climb to the top to leap down on the other side; they swim through rivers, even lakes and ponds, without turning from the straight line; so that, if they meet a veſſel, they get upon it, instead of going round, and hasten to throw themselves into the water, exactly on the side opposite. Thus, fortunately for the Norwegians and Swedes, these singular animals never halt long in a place, and only pass in a straight line, traversing the mountains and the vallies, without turning to the right or left, at least while they continue in great numbers;

bers; for, after hundreds of thousands have perished in water, or otherwise, then the remainder disperse and disappear insensibly, without a single one returning, however, to their native country.

RATS.

EVERY person is acquainted with these little destructive quadrupedes with a long tail, as large as young cats, with hair blackish, black, brown, grey, or white, that frequent houses, stables, granaries, cellars, larders, kitchens, vessels; where they eat bacon, meat, sewet, butter, bread, fruit, cheese. They gnaw clothes, furniture, paper, leather; in short, in case of scarcity, they prey upon mice, and even on one another. If they chance to master a good fat hog, in the corner of a stable, they make holes in his belly, where they lodge, and continue some time, in the same manner as mice.

Rats (Plate VI. fig. 13.) are very ferocious animals, that run about a house like mad creatures, from top to bottom, and from the bottom to the top, and in all the corners and recesses, even from one house to another, making their way through doors, partitions, walls, and destroying every thing that they meet with. If they find a heap of corn, they begin with satiating themselves; then they entrench themselves in it backwards; and yet, after all, carry off great quantities of the grain on their back. They multiply prodigiously, since they bring forth twice a-year, each time five or six young; and as they often, with all the cats, snares, poisons in the world, cannot be destroyed, they sometimes

times come to infest a house so much as to run among peoples legs, to skip about in broad day upon tables and chairs, and to seize their provisions in the face of every body.

People in general have a great aversion to these animals; several even think them poisonous, but this is not the case; and, in many places, people eat them without reluctance, so that, in case of need, we might have recourse to them without fear. The Californians in particular consider them as an exquisite regale for them, which they prefer to all others.

THE WATER-RAT.

This is a little larger than the house-rat; but, in its dispositions and habits, has much resemblance to the otter. Like it, it lives almost constantly on the brinks of rivers, ponds, lakes, ditches; like it too, it subsits almost solely on fishes, adding occasionally frogs, lobsters, aquatick insects, sometimes also water plants. It swims well, having the toes of the hind feet palmated *, and can continue long under water. It is of a blackish grey.

THE HOUSE-MOUSE.

We give it this name to distinguish it from the field-mouse and the wood-mouse. It is much smaller than the rat, and much less mischievous likewise. Not, however, that it does not eat meat,

---

* Bomare says just the contrary.

meat, fat, bread, cheese, and every thing that it meets with, or even that it does not delight in gnawing and boring holes every where; but it is not so bold nor impudent as the rat: on the contrary, it is timid, leaves its hole only at night, or when urged by hunger: every thing must be quiet too, so that it perceive neither cat nor any other enemy near enough to molest it.

We sometimes like to amuse ourselves with observing a little mouse gather a few crumbs of bread trembling, run to take shelter in its hole, come out the next instant, squat on its tail, leap, &c. We sometimes even feed white mice in a cage, because they are uncommon. Nevertheless, when they grow too plenty in a house, this trifling ends in disgust, because then they become as pert as the rats, and would at last come the length of devouring people, or making them leave the house.

But, with the assistance of cats, traps, and rat-poison, we can soon diminish their numbers, or even extirpate them altogether, in spite of their fecundity; for they bring forth two or three times a-year, and at each time six or ten young. However, we succeed with difficulty by means of a good cat; for all cats do not understand their business equally: if it be one that understands it, this troublesome race soon disappear. Figure 27. of Plate IX. represents a mouse, and fig. 28, a cat.

THE WOOD MOUSE.

THIS is nearly half as large as a rat, and of course the largest of its own species. It is reddish; its eyes are very level with the head; it does not enter houses, and remains constantly in woods or fields, where it subsits on acorns, beech-mast, and all kinds of grain and young birds.

THE FIELD-MOUSE.

Smaller than the former, this one nearly equals the ſize of the house-mouse; its hair is of a reddish grey, its head large, its tail short: it frequents fields, meadows, woods, gardens, where it makes much havock (Plate VI. fig. 4.) It is truly a scourge and a calamity when this species become numerous in any district; they are capable of plundering, in a few days, not only a whole field, but even the whole district, so that nothing will be left either in the gardens or fields. This scourge is so much the more terrible too, as frequently every attention, every stratagem imaginable, is insufficient to destroy them, considering their rapid multiplication, and their passing from one country to another. Commonly nothing but violent rains or strong sudden frosts can destroy these destructive animals by thousands. Alas! even these frequently come too late: and the peasants, instead of the grain which they expected to reap, finding nothing but straw, and that with difficulty, are forced to weep over their ruined fields, and the misery to which they are reduced. These wicked nibblers have even been seen to carry their cruelty so far as to destroy even the new seed thrown into the ground before winter. A person could not move a step in the fields without turning out a dozen of these creatures.

There is a mouse, with a long sharp muzzle, that has much resemblance to a mole, and seems to form the intermediate step between the two, (Plate X. fig. 23.) It is smaller than the house-mouse, and of course is the smallest of the mice; we might even say that it is the smallest species* of viviparous animals that we know. It is of a reddish brown, frequents stables, hay-lofts, dunghills, and also woods and fields, where it subsists on grain, insects, and carrion; whence it acquires so bad a smell, that the cat, which takes and kills it, has not resolution to eat it. It is not, however, poisonous.

The water-mouse is a little larger, is of a blackish grey, frequents springs and rivers, swims, and even dives; and subsists on aquatick insects, fish-spawn, and small fishes.

THE MOLE.

This is a small quadruped that many people believe wants the sight, because its eyes, small and concealed, are not on a level with its head, like those of the cat; nevertheless, upon examination, we find that it has eyes, which probably serve its occasion. It has likewise been thought to be deaf, because it wants the long ears of the ass, and, instead of these organs, we only observe a small aperture: but that does not hinder it to hear very well, insomuch, that it excels in this respect, and in smell. But it is actually destitute of voice, and can neither whistle nor cry; nor has it any occasion, since moles understand one another well enough without this help, by the assistance merely of sight and smell.

---

* *Pallas*, in the second volume of his voyages, speaks of a species of mouse of an incrediable smallness, that is found in Siberia, near the river Ienisei: in that case, it will be the smallest of viviparous animals.

The mole (Plate III. fig. 23.) has the hair of an ash grey, the muzzle very long, the feet resembling the hands of a man, and furnished with five toes, armed with sharp nails, and a very small tail. It remains almost constantly under ground, which it digs and throws out above, where it lives upon insects and worms, and whence it seldom comes forth but in the warm nights of summer. It is fond of a loose soil, where it can carry on its labours with ease, and can more commodiously find its prey: it shuns rocky sandy soils, because they do not abound with worms, and because it pierces them with more difficulty. It burrows to the depth of four or five feet, and commonly lodges under a tree or a stone, to be better protected from rain: for it is much afraid of three things, moisture, cold, and the rays of the sun. But if the rains become too copious, or if there happen an inundation of the spot where it is lodged, it is gone; perhaps an individual may escape, that is fortunate enough to swim to some dry place, or that digs the earth so deep that the waters cannot reach it; but even in this case the young moles that remained in their holes always perish.

It produces four or five young every year, and does not live above five or six. In winter it does not become torpid in its hole, but only digs deeper, whither it is followed by the insects and worms that are likewise compelled by the cold to go farther from the surface: so that it is supplied with provisions at all seasons, and does not even find more difficulty in procuring its food in winter than in summer.

It is chiefly in the morning at sun rise, and in the evening, that it digs, so that it may not be perceived; if it sometimes dig in broad day, at least it is careful at this time not to throw out the earth; it does not readily even run the risk of digging near the surface, where it may be taken without difficulty.

There are different ways of destroying moles: sometimes two or three people set to dig a small circular ditch round its hole, before it has had time to extend its trench beyond it, and then lie in wait for it as it passes; sometimes they watch the morning and evenings, when the moles throw out earth, and with a stroke of a spade cleave them in two: sometimes they block up one of its galleries, and place just beside it a pot varnished and deep, with a few worms within, so that the mole, in attemping to catch this prey, falls into the pot, and cannot get out. There are different kinds of traps likewise for taking moles.

In reality, it is true, that this animal is of some use in a garden, by destroying a number of worms that gnaw the roots; but unfortunately it does not content itself with destroying the worms, it destroys the roots too, and in fact, eats a prodigious number of plants under ground; besides, it deranges the earth exceedingly by its constant diggings, and gardeners are at great pains to get rid of it.

THE OPOSSUM.

This is a very singular quadruped, about the size of a cat, with a fox's head, and a hog's snout, the hair of a blackish yellow, the tail a foot in length, covered with hairs above and scales below; and it has between its hind legs a pouch or bag that serves to carry its young for suckling them, rearing them, and protecting them from dangers, as often as there may be occasion. See Plate IX. fig. 4.

This remarkable animal inhabits America: it subsists on the sugar cane, the eggs of birds, and their blood, which it sucks, and in this manner frequently makes dreadful havock in court-yards, because leaving the flesh of the fowls, and taking only their blood, it must destroy the greater number. It clambers upon trees, and suspends itself by the tail to a branch, swinging in the air till it see some small animal pass whose blood it may suck: then it darts upon it, and the business is finished in a moment.

The opossum brings forth annually from four to seven young, which at the period of their birth are scarcely so large as walnuts, scarcely half formed, being incapable to move either leg or foot, blind in short, and yet quite alive, and particularly sucking wonderfully. No sooner are they brought forth than the mother takes them in her fore paws and puts them into her pouch, where they find eight paps furnished with milk: each hastens with his snout to seize one, which it does not quit for fifteen complete days, sucking without intermission as if it was glued to it; in a word, until it be completely formed, and nearly as large as a mouse, with the power of using its limbs, and having its eyes open. After this the mother takes them from her pouch, and drives them out to learn to seek their food; but she takes them in again to give them suck, still continuing this operation for some days longer, till they be perfectly strong. Even after this period, she constantly watches over them, and when she perceives an enemy, she collects them quickly, ly, puts them into her pouch, and makes her escape with them. But if unfortunately she be overtaken by the enemy, or, if upon any other occasion, she be surprised by an imminent danger, in that case, whether it be that her sudden confusion deprives her of every sentiment, or that she knows no other shift, she falls down on the ground, and continues there without strength, and without motion, suffering herself to be burnt, pricked, struck, mutilated even, and her young to be carried off, without stirring, or giving the smallest cry. If she survive it, and the enemy goes away, she opens her eyes, looks round her with grief and uneasiness, rises, and makes her escape, if she have still the power.

The opossum does not run remarkably well; it is run down without much difficulty, it is carried off with its young, and grows so tame as to run after its master like a dog, allowing even its pouch to be opened, and its young to be looked at and handled.

Under the genus of opossum is ranged another American rat, of an ash-grey on the back, white on the belly, living under ground, and remarkable, from an instinct possessed by the female, of taking, in case of danger, her young on her back, turning up her long tail that they may twist it round them, to keep them more secure. See Plate IX. fig. 5. Then she runs very rapidly with this burden, and even clambers up trees, without losing one of them. Now, guess what name has been given to this animal, on account of its carrying off its young in its flight. . . . . . Guess: it is one that you know, or at least that you will know soon. But you may think of it to no purpose; for you would not imagine that it was the name of a man who carried off his father on his shoulders, in his flight from a besieged city. This rat has been called Æneas: it is true, that Æneas on making his escape from Troy, likewise conducted his son Ascanius, but leading him by the hand, so that the little fellow, with his short steps, had great difficulty in keeping pace with his papa, though loaded with his father's weight.

THE HARE.

This again is not a hurtful animal like those which we have been considering; on the contrary, it is very useful, as well for aliment as on account of its fur. A hare makes an excellent roast, and its skin serves to make warm linings, and the down also is used in great quantities by the hatters. We have also in France the method of spinning and making it into pretty stuffs.

Hares are multiplied over the whole world; they are even innumerable in some countries, so that no person is prevented hunting them In other countries this is reserved for the nobility and gentry, or landed proprietors, who make their servants hunt them, and sell them. Sometimes, in one of these districts where this game is preserved, four or five hundred will be taken at a single hunting match: nevertheless, these animals do not seem to be diminished ; so rapidly do they increase.

The female hare brings forth in a single season fifteen or twenty young, at five or six births, ſo three or four each. She suckles them all for twenty days; but, after this period, they are obliged to provide for themselves, because the mother, ready to bring forth again in a short while, cannot continue her cares to them any longer.

As to the male, he gives himself no trouble about them, and even devours them sometimes.

P. Ah! who could have believed that of a hare? the wicked rascal! and what does the female do then?

M. She minds the less to hinder him, because she often does the same in her turn, and sometimes eats them one after another.

P. Ah, the wicked animals!

M. I suppose you will eat no more hares? however, you ought rather to eat them the more; if it was only to punish them; besides, their flesh is not the less delicate on that account.

P. But what do hares commonly live on?

M. On plants and roots, grain, young green buds, grass, leaves, and, in winter, even on the bark of trees. They frequent woods, thickets, fields, gardens; in the day-time they commonly remain at rest in their form, or in some little hollow, couched close on their belly: but, on the approach of evening, they begin to leap, to run, and seek their food, particularly in moon-light, It is pleasant to see them leaping and playing together, pursuing one another, and taking a thousand pastimes. You know the proverb that says: to sleep like a hare, with eyes open? In reality it does sleep in this manner, but this is not from foresight: it is in consequence of its eye-lids being too small for its eyes, so that it cannot shut them, and is forced to keep its eyes at least half open. Besides, its sight is rather weak, and even its smell very dull, but, to make amends, its ear is very fine; thus it is extremely alert on the least noise that it hears. That the tread of a man or a dog should make it shift its place instantaneously, is not surprising; but the noise of a falling leaf, of an insect moving among the foliage, the smallest thing in a word, gives it the alarm; and, in an instant, it takes to the fields, and runs as fast as it can. Notwithstanding, we are wrong to charge it with a foolish timidity; weak, defenceless, ill provided with organs, exposed to a thousand enemies, these are sufficient to excuse, or even render necessary an excess of precaution.

Nothing frightens a hare so much as the sight or the voice of a dog; and it is at this season of danger that we observe this animal, otherwise peaceful and artless, display an address and cunning that are astonishing. By means of stratagems, it will fatigue or throw off the most experienced dog. What leaps in different directions to make him lose the scent? What turns, and windings, and doubles? How many hedges gone through? Sometimes it squats in the middle of a flock of sheep, at other times it crosses burns and meres, rivers even. But, as is said, two dogs are the death of a hare: when there are two at her heels, her shifts are in vain, it is over with her, especially if they have her on a height. For, as her fore legs are very short, she climbs easily: but she must descend at last, and this is the time that the dogs are sure of her, for she is constantly tumbling.

The hare is grey on the upper part, but below it is white and yellowish; its eyes are large and prominent, the muzzle thick, and its nostrils situate far above its lips, look like another mouth, the more so too, as the upper lip is divided. Hence, if a child be born with a similar conformation, or if its upper lip be afterwards divided by any accident, it is said to have a hare-lip. The hare has the mouth garnished with hairs like the cat, the ears long, black at the tip, the tail short and turned up, the fore paws short and slender, with five toes; those behind long and thick, with only three toes. Plate VI. fig. 5. represents an old hare, and fig. 6. two young ones. A hare may live eight years: those that are so old, do not answer for roasting; to have a good roast of a hare, we must have a male of two years old only: it is a dish for a prince. Some pretend that the flesh of the female is more delicate.

THE RABBIT.

THIS is a quadruped no less useful to us than the hare, since we eat the flesh, and make use of the skin; but it is not nearly so numerous; and, as it cannot bear cold, it is not found at all in climates where this is severe, though this be the situation where hares are most abundant

Farther, there are some countries where many were found formerly, and where none are to be found at present, because being formerly too plenty there, and spoiling the soil with their burrows, the natives have been obliged to destroy them. In reality, this animal multiplies astonishingly; the female has as many as six births a-year, and almost at each six or eight young: and this troublesome ſecundity has sometimes been on the point of laying waste whole provinces, and expelling almost men and cattle from their habitations. In Spain, for instance, they were formerly so numerous as to be a scourge to the country, and the inhabitants were obliged to destroy them. From Spain they passed into Italy, thence into Germany, into Holland, and over all Europe.

The rabbit is smaller than the hare, but has almost the same colour, shape, manner of living; however, it is more industrious, and less timid. Pursued by the fox, or the wolf, the dog, the martin, the weasel, it contents itself with retiring to its hole: it is true, that there it is not in safety against them all, and that if the weasel or the martin, or even the fox, pursue it thither, it is needless for it to defend itself, and to dig; it is gone, itself and its young.

There is the domestick rabbit (Plate V. fig. 22.), and the warren or wild rabbit (Plate VII. fig. 25.): this last is grey, and not so thick as the former. Among the domestick kind, some are grey, white, black, spotted; the white are the best, their skin gives the best price. They are sometimes raised by fifties in houses that are close, and the nobility have commonly, in their policy, warrens, which are pieces of rising ground, where the rabbits pass the whole year in holes, which they dig themselves under ground. There the females rear their young, and do not expel them till they be two months old, and strong enough to provide for their own wants. By this method we unite the advantages of the wild and of the domestick state of rabbits; we enjoy the pleasure of seeing them come out one after another from their burrows, sometimes a black, sometimes a white one, leap, bound, feed at their ease, sport with their young, become accustomed to the sight of man, and sometimes grow so familiar as to come out and assemble on the blowing of a whistle. When we wish to have one alive, there is a dog trained for that purpose, that carries bells, and that is put into the warren. Instantly all the rabbits leave their holes upon this noise, and the dog has a hold of one immediately by the knape of the neck, to carry it to his master, without the least injury.

THE CAVY.

THIS is about the size of a squirrel, and of the colour of a wild rabbit; it wants the tail, and has the snout and almost the grunt of a hog; which has procured it the name of the hog of Brasil, a country of America, whence it has been brought to Europe. It eats all kinds of plants and fruits, and also bread and meal; it prefers parsley to every thing. This animal multiplies very rapidly; but it is not eaten in Europe, though it be considerded as a regale at Brasil, where it is found to have the taste of a young rabbit. The male and female never sleep both at the same time, but one of the two always keeps guard, while the other sleeps. See Plate XII. fig. 28.

THE AGOUTI.

THIS quadruped, otherwise named the hog-rabbit, is of the size of a hare, and eats fruits, roots, the leaves of trees; it does not dig holes in the ground, like the cavy, but it lodges in the holes of trees. This animal is originally from Brasil in America, where it is eaten.

THE PACA.

This too is a quadruped from South America, as large as a rabbit, which also makes holes in the ground, and lives on roots, herbs, &c. It has some resemblance to a young hog in respect to its shape, and also in its grunting, and in its manner of digging the ground. It is reckoned a delicacy in its native country.

THE MARTIN.

This animal is a cruel enemy to fowls, of which it worries and kills as many as it gets a hold of. Pigeons, hens, geese, great or small fowls, it spares none. It has even the courage to attack fowls much larger than itself, as the wood-grous, the pheasant, the turkey-cock; in short, even the eagle is not safe from its cruel fang, if it can surprise him asleep: and, when it has begun to suck his blood, it will allow itself to be carried to the clouds, rather than resign its prey.

The martin is as large as a cat; its hair is of a yellow brown, its body slender, its legs short, its tail long and garnished with hairs. It devours all kinds of birds, sucks their eggs, eats honey too, and, in a strait, has no objections to squirrels, rats, mice, and moles.

Martins are distinguished into two species, the domestick, which has the throat white, and the wild, which has this part yellowish; in other respects they are nearly similar.

The domestick martin commonly lodges either in houses, old buildings, hay lofts, the holes of walls, or at least somewhere in the vicinity of houses; it gets upon the roofs, and enters poultry-houses, where it exercises its rapine upon pigeons and poultry, see Plate IX. fig. 33: when it has found its way into a dove-cote, it does not leave a single bird alive; it begins with eating the brain, then it sucks the blood; it afterwards carries off one or two to its hole, and returns from time to time to seek the rest.

The wild martin keeps at a distance from our habitations, residing constantly in forests of oaks, pines, beeches, where it lodges on trees in the holes of ſtock doves, of squirrels, and even of owls, which it compels to leave their retreat. On the approach of that period when she is about to bring forth, the female is particularly anxious to find out a good squirrel's nest, whence she expels the prôprietor, to enlarge and model it according to her taste. She is very fond of squirrels, but especially birds, and has even the courage to assault the eagle, the most formidable of the whole.

P. But, dear Sir, when a martin has been carried high, very high, by an eagle, what becomes of it afterwards?

M. Ah, the wicked creature! it obliges its eagle to re-descend to the earth; by means of tearing him, and sucking his blood, it exhausts him, and he soon falls either dead, or nearly so. This fall, it is true, is not without danger to the martin; for the eagle no longer falling on his feet, from his weakness, but on his back, he sometimes crushes it with his weight, or makes it break its neck and legs.

The martin has every year four or five young, and does not live above eight years at most, Its skin affords a valuable fur, and its flesh is likewise eaten. It is much less common in France than the domestick martin; it is scarce in Germany: but in Russia, in the north of Asia, and America, it is in such plenty, as to be taken in not less than thirty or forty thousand a-year.

THE POLECAT.

THIS animal has much resemblance to the white breasted martin, not merely in the shape of its body, but likewise in its bloody dispositions. It lives at a distance from houses, and in woods, during summer; on the approach of winter, when birds and their eggs are no longer to be met with in the woods, it draws near villages and cities, to be near pigeon-houses and poultry-houses; frequently it takes up its residence in a hay-loft, or among a heap of wood. It exhales so noisome a smell that it is impossible to eat its flesh; dogs even reject it: as to its skin, it is not in great request either, because it always has some of this odor. See Plate IX. fig 32.

THE SABLE.

THIS is the name given to a wild quadruped, a native of the northern regions; the fur of which is so valuable and high priced, as to be worn only by princes and people of the first condition. Though it be not larger than the white breasted martin, a single skin brings from sixty to eighty crowns, and even more, according to its beauty and the lustre of the black.

The sable (Plate IX. fig. 39.) has the body as slender as the martin, and the legs as short. It is found only in the thickest forests of Siberia, and other most remote regions of the north, where it lodges in hollow trees, near brooks and rivers. It eats birds, and sucks their eggs; but in want of these it contents itself with acorns, with beech-mast, wild berries, and fruits, young shoots of trees. It produces yearly from four to six young, and lives at most eight years. It is very alert at clambering on trees, and leaps from one to another with surprising agility. It drinks fresh water greedily, but in a singular manner; for, instead of dipping its muzzle in the water like other animals, it only plunges its long bushy tail into it, to suck it afterwards. Its flesh has not a bad taste.

The Empress of Russia employs the exiles of Siberia in hunting sables, either for a certain period, or during life, and the skins are sent to Petersburgh, where her Majesty gives many of them in presents, and leaves the rest to the merchants. The hunters kill them only with arrows, and can neither use ball nor small shot, because the skins would be too much torn, and of less value: for, instead of sixty or eighty crowns, which a good skin will bring, it will scarcely give five or six when pierced with musket shot.

THE WEASEL.

This has much resemblance to the martin; but it changes colour in winter, or from brown becomes white. It lodges in the holes of trees in the middle of forests, where it catches birds, sucks their eggs, eats rats, mice, serpents, moles, insects, and even fishes, when it inhabits near rivers, or ponds (Plate IX. fig. 40.) The weasel, however, often frequents gardens, meadows, fields, to hunt quails and larks, or any other small bird On the approach of winter it retires to villages, hamlets, and other places, where it expects to find poultry: there it takes up its abode in barns, hay-lofts, granaries, and makes war upon mice and rats, while waiting for a hen or a pigeon to fall into its clutches.

It is taken with difficulty, because it sleeps in the day, concealed in its hole, and comes forth only at night, to exercise its rapine. Nevertheless, it is taken with springes and traps, and it may be watched, and fired on. Its skin, when white, is of some estimation.

THE ERMINE.

THIS is regarded as a species of weasel confined to the countries of the north, that is only found in the colder districts of Norway, of Sweden, of Russia, where it eats birds and lemings, (Norwegian rats, that we have already mentioned). The ermine is said to be a small animal very ferocious and very bold, which in the fine season swims to the islands that surround the coasts of Norway, in quest of birds and eggs. It surprises even, during sleep, elks, bears, eagles, fixes on them, to suck their blood, and never quits its prey, whatever movements it may make, till it falls down dead *.

---

* See *Pontoppidan's* Natural History of Norway.

The ermine (Plate IX. fig. 41.) likewise furnishes a valuable fur. The tip of its tail, which is black, sells very high, and forms those ornaments that canons wear on their arms. The royal mantle is lined with ermine, and also other robes of state. The robes of presidents are furred with this: and beside all these, it is much used for muffs, bonnets, in the dresses of ladies and others.

THE GLUTTON.

THIS quadruped is named thus, on account of its gluttony; for it seems more insatiable than the wolf. It is the size of a large butcher's dog, and likewise resembles him in shape. See Plate IX. fig. 38. Its hair is blackish, its legs short, it runs very ill, does not leap, inhabits Lapland, the north of Asia and of America; and lives on birds, on hares, rain-deer, and carrion, though possessed of much cunning to take live animals. For instance, to become master of a rain-deer larger than itself, and prodigiously nimble, it clambers up a tree to watch him as he passes, and takes up in its mouth a little moss, which these animals are very fond of. As soon as it perceives one at a distance, it lets fall the moss to entice and stop him; if this snare takes, the glutton darts upon him, begins by tearing out his eyes with its claws, and fixes itself so firmly between his horns, that, in spite of all the desperate efforts of the poor animal, it cannot be shaken off. In the mean time, the blinded animal running himself out of breath, knocks his head against trees, and weakened too by the loss of blood which the glutton has sucked, soon falls, weak and lifeless. The glutton instantly tears him in pieces, swallows a part with skin and hair, then buries the remainder, for another occasion, in the snow. It is said to kill horses too in the same manner.

But however insatiable the glutton may be, we cannot give credit to the story related by some historians*. They allege that the glutton, when it feels its belly too much distended in consequence of what it has eaten, seeks out two trees situate so near to one another, that it cannot pass between them, and then squeezes its belly between these so strongly as to empty it, for the purpose of beginning to eat a-fresh. It is true, that we see very curious things in this respect; for instance, men who swallow a whole plateful of glass and pebbles, and eat above that some pounds of meat and bread, and evacuate the whole downwards immediately, without feeling any bad effect. But with all that, the story of the glutton in question wants confirmation.

Its fur is very beautiful, and very much esteemed, very dear, particularly in Sweden, and preferred to every other by the inhabitants of Kamschatka.

THE CIVET.

THIS animal is the size of a cat, with the hair grey, striped with black. It is a native of Africa and of India, where it lives on birds, eggs, fruits. What is most remarkable, is a bag or pouch situate between the hind legs of this animal, filled with an oily matter, of an extremely strong smell, and which is used as a perfume under the name of civet; which has likewise procured the animal the name of musk-cat, though musk be quite a different thing. It is on account of this perfume that the civet is taken; it is kept confined, and its pouch emptied at certain intervals; this fatty matter is afterwards made into little balls, that are known every where. The Dutch, who make a great traffick in this, raise these animals in cages, to avoid being imposed on by what is adulterated. These cages are so strait that the animal cannot turn within it; without this precaution, it would be difficult to empty its pouch of the perfume, for it bites and tears cruelly. This perfume is taken off every two or three days, by means of a small spatula, which is introduced into the bag.

---

* Olaus Magnus, a Swedish author, who has been followed by others, particularly by Conrad Gesner, a Swede.

THE GENET.

THIS also is another animal of the same country, which has likewise a bag of perfume, but of a smell that is weaker and less durable than that of the civet; to which, in other respects, it bears a strong resemblance, though smaller.

THE STINKING WEASEL.

THIS animal, likewise called the striped polecat, inhabits America, where it lodges, during the day, in old hollow trees, and in the night hunts birds, among others, hens, the eggs of which it is very fond of. It is the size of the martin, of the same slender shape, black, and striped with white, in other respects not very agreeable, but still very remarkable. When a person approaches, it growls and snuffles, scrapes the ground with its fore feet, turns about its posteriors, and discharges its excrements, the odor of which is unsupportable even to animals. Thus it is seldom approached; but if it chance to see any animal within its reach, whether it be a dog, or any other large animal, it immediately discharges its water on it, which is said to be still more fetid than its excrements, and so caustick, that, if a few drops of it penetrate the eyes, the animal runs the risk of losing its sight.

THE FERRET.

THIS is a small animal originally from warm climates, and only reared in France, in a domestick state; it is of the genus of weasels, has a long slender body, the muzzle sharp, and constantly emits a disagreeable odor. It has the disposition of animals of this class, and is the only one that we have found out the way of employing to our advantage, in making war upon others; it is particularly used in hunting rabbits. But it must always be muzzled when put into a burrow; otherwise it devours the rabbit, or at least sucks its blood, and falls asleep in the hole, so that we would lose both rabbit and ferret. The female has two births in six weeks, commonly of five or six young.

It may be thought, that, if we had taken the trouble to tame any other species, as the common weasel or martin, we would have received from it the same services; for it does not seem that the ferret has arrived at a degree of docility which these other animals would not have attained.

THE ICHNEUMON.

THIS animal is likewise called the Egyptian rat, Pharoah's rat, and is the same which we mentioned at the article of the crocodile, whose eggs it eats. The ichneumon (Plate XI. fig. 31.) is as large as a martin, nearly of the same figure, spotted with white, with black, and yellow. It inhabits the warmest countries of Asia and Africa, particularly Egypt and India, on the sea shore, on the banks of rivers and lakes, where it eats serpents, lizards, rats, mice, birds, and the eggs of the crocodile. The female produces yearly from three to five young.

In Egypt, it is taken and tamed, to be used instead of a cat, for cleaning houses of rats and mice. There are people in the country who traffick in it, and carry it to market for sale. But it is far beyond our cats and our dogs in its disposition to theft and carnage; serpents, lizards, frogs, or even any other living animal that offers, rouses this disposition; and dogs even, in the same manner as cats, are liable to become its prey, since it likewise eats young crocodiles. But what it prefers to every other thing, are crocodiles eggs, which it has the art to discover surprisingly, and dig up from the sand. It has been found out to be false, however, that the ichneumon enters the body of the crocodile by its mouth, when it comes upon this animal asleep, to eat its entrails, and afterwards returns by the same way, or makes an opening for itself through its belly.

THE BADGER.

Of all the animals that we are acquainted with, this is beyond doubt the most constant sleeper; for it sleeps constantly the whole day, then a good half of the night, over and above the whole length of winter: thus the badger sleeps much more than three fourths of its life, and the marmot, or the dormouse, are in comparison of this, extremely active animals. But though it does sleep a great deal, it is not, however, subject to grow torpid like the dormouse and marmot, and preserves its heat during winter by its address in getting beyond the reach of cold, under ground.

It is the size of a fox, or of a small dog, with the head of the former, and nose of the latter; of a white colour, red and black, his claws long and slender, and almost no tail. Plate XII. fig. 43. It burrows in the thickest part of the wood, to the depth of four, eight, ten feet, and lives on rats, mice, eggs, birds, grain, roots, fruits: the female produces yearly three young: This animal lives commonly nine years.

It is capable of being tamed, and then supplies the place of a cat in a house, and frees it in the same manner of rats and mice; but its domestick state is more expensive than that of the cat, because it is not satisfied with rats and mice, and spares neither poultry, nor any thing else it has a mind to. It may be eaten itself too; its flesh is not ill tasted. As its skin is strong and well clothed with fur, so as not to be easily penetrated by moisture, it is used much for making bags, knap-sacks, the lining of trunks, and other things:

lastly, its long hairs serves painters for their pencils.

It can only be taken by means of a kind of dog called a terrier, with crooked legs; he alone can penetrate its hole, and pursue it to the bottom, whence he expels it, so that the hunter, who waits at the mouth, kills it with ease: Sometimes this terrier, assisted by some more, kills it himself; or else, if the badger will not come out, it gives the hunters time to pierce the earth above, and take it out.

We must also arrange in our second class the coati, which has a habit of gnawing its tail, and is only found in America: the fox of Ceylon; the souslick; the great gerboa of southern countries; the common gerboa.

SECOND CLASS OF VIVIPAROUS ANIMALS.

In considering this class, we shall get acquainted with those animals that are most mischievous, that is with such as attack men, dart upon them, tear them, devour them: not, however, that all animals contained in it are equally terrible; for, along with the lion, the tyger, the wolf, and the bear, it likewise comprehends the cat, the dog, and a number of others, more or less dangerous. Let us begin. . . . . Come, my friends, tell me which of these ferocious creatures you wish to get acquainted with first?

P. Ah, dear Sir! little puss. . . . . . though I should like to see the lion likewise, that is said to be so terrible.

M. We shall come to him afterwards; it is always proper to endeavour to get thoroughly acquainted with those objects that are nearest us, after which we go to those that are at a greater distance: thus, we shall begin with your little puss. But the pretty little puss becomes a big rascal of a cat, that is in general considered as a very treacherous animal, very wicked, and particularly an arrant thief. It is in vain to caress it, to give it delicacies, or even to beat it, confine it, punish it, we can never correct it of its two capital vices, that of scratching, and that of thieving.

It is true, that it rids us of rats and mice that are likewise very troublesome, and very expensive guests; but in prying into every corner and recess to take them, it destroys meat, pastry, butter, milk, fowls! It is not even safe to leave it alone with a roast on the spit before a large fire; after eyeing and smelling it long, her appetite gets the better of her fear, and she will seize it at all hazards. But what disgusts us most in this animal, otherwise so enticing by its shape and amusing gestures, is, that, in the midst of those caresses we lavish upon it, it suddenly makes us feel its traitorous claw; and, after long playing with velvet paws, it finishes by tearing our skin, and making its escape.

Nothing can be more cunning, more expert, more artful, than an old knavish cat to accomplish his ends, and get possession of that prey which he has cast his eye upon: the most expert pick-pocket is but a scholar to him. If he perceive any body approach, he pretends not to observe the thing he has a mind to; he goes about his business with indifference, or places himself in the attitude of watching a mouse, and, without becoming impatient, watches with perseverance,

severance, till the opportunity offers to strike his blow. No sooner is it done, than he makes off, disappears, and is not seen for some days, or at least till called: but then he carries in his countenance all the marks of a bad conscience: he turns away his eyes, dares not look one in the face, skulks in corners, and takes a thousand windings before he approaches you.

But what is worse than all that is, that the best treatment, too much fondling, only corrupt and spoil him the more, as constantly happens with bad dispositions. Instead of growing affectionate, like the dog, to the person that is kind to him, his wicked disposition receives from this very contrary impressions: there is no animal that is more perverted by ease and good living? so that his vigilance and activity, his chief qualifications, are soon converted into idleness and extreme indolence

P. I begin already to hate a cat; I believe, by and by, I shall not be able to suffer it.

M. In reality it is one of our enemies that we oppose to others that are still more troublesome. Some people imagine their breath hurtful to those who are in the habit of breathing it frequently; and it is thought, with still more probability, that, when in a transport of fury, they bite a person's hand, their saliva introduced under the skin opened by the tooth, may produce very dismal effects; this saliva resembling in some measure the nature of that of mad animals.

The opinion, however, entertained of the wicked disposition of cats does not hinder that we have always seen, and still continue to see, people that are so fond of these animals as to treat them better than most servants, even than most children are treated. Some people are not satisfied with feeding these favourites with delicacies while they live, but carry their folly so far as to leave them pensions, by their will, that they may enjoy the same treatment after their own death. On the other hand, however, we see people that cannot suffer cats, and that carry their aversion to them so far as to be out of humour, if they are obliged, by any circumstance, to have one of them near them for any time: nay, there are even people, that, on the approach of a cat, grow sick, or fall into fits, though they themselves had not perceived it at first; and, if the cat be removed, they recover their tranquillity. Among others, Henry III. king of France, is mentioned, who, on the sight of a cat, used to grow pale, and fall into a faint. I am perfectly satisfied, that you are not troubled with this disease; for you all like to play with cats. But there is a good medium; it is proper, sometimes absolutely necessary, to have a cat in a house to prevent the ravages of the rats: but it ought to be used severely; for, when treated delicately, it becomes indolent, and no longer hunts rats. It is by no means fair to treat one of them better than a dog; since this last is a faithful animal, that attaches itself to its master, even when ill used, and frequently renders him very important services, in consequence of pure attachment.

Cats catch not only mice and rats, but also serpents, lizards, toads. The cat is a very cleanly animal, and this is one of those qualities that makes it liked. It is constantly licking, adjusting, glossing itself; it is careful to deposit its excrements in some bye corner, and to cover them over with sand, earth, ashes, when these can be got. It is extremely tenacious of life, and sometimes defends itself against the largest dogs. It scarcely lives above a dozen years, and the female has two, three, four births yearly, of four, five, or six young, each. The flesh of cats, particularly of wild cats, is eaten in some places, and their fur is likewise used for different purposes.

When the female has young ones, she avoids the male, because he frequently devours them, and she carries them one after another to some retired corner, where she rears them. As soon as they are strong enough to run, and to eat a mouse, she takes them to hunt, and trains them to take their prey. Then, if she catches a mouse herself, she gives it a slight bite, and allows it to run, that one of her kittens may take it; but, if the mouse run too far, she retakes it, gives it a severe bite, and falls a growling at her young, to encourage them to hunt, till one of them darts on the mouse, kills and eats it.

As to the colour of cats, it is very varied as you know; and every person prefers a different one, tho' generally cats of an ash-grey are most sought after. But these varieties of colour are only met with in domestick cats: wild cats (Plate VII. fig. 9.) have the whole hair of a deep red, and generally a black stripe along the back. They eat of every thing that the others eat of; but they have more game to make choice of, as field-mice, rabbits, hares, and even young fawns. To catch these, they clamber up a tree, and remain on a branch, till one pass within their reach; instantly they dart upon it, strangle it, and eat it.

THE

THE LYNX.

THE name of this animal is well known on account of those fabulous qualities that have been imputed to it, to wit, eyes so piercing as to see through walls, and into the bosom of the earth, and urine which grows hard, and is turned into a precious stone, &c. To keep to the truth, we shall find that the lynx resembles nearly a wild cat, with the difference of being rather larger, much bolder, since it attacks not only the wild cat, but also other animals much larger than itself, such as the stag, boar, &c. of which it sucks the blood, and opens the scull, to eat the brain, whilst it rejects their flesh to feed on that of birds, squirrels, and weasels. It remains in the most impenetrable parts of the forest, whether in Europe, Asia, and America. It darts from trees upon its prey, fixing itself by their throat, and sucking their blood, till they fall down dead. However, the boar sometimes gets rid of it by penetrating into close thickets, but the poor stag never escapes it. See Plate VIII. fig. 6.

The proverb that celebrates the eyes of the lynx is true in this, that the animal has in reality a very acute sight. On the body, its hair is of a whitish grey, spotted with black, and, on the tips of the ears, it is long and black. The female produces yearly from three to five young at a birth, and they live commonly from ten to fifteen years. The skin of the lynx affords a pretty valuable fur; the best of them come from Siberia.

THE

THE LION.

This is the strongest, the boldest, the most terrible of all the animals that we are acquainted with. He gets the better of all others; and the only animals that can compete with him are the elephant, the tyger, the hippopotamus, and the rhinoceros, unless we wish to add the porcupine, whose prickles defend him against his attacks. But none of these animals, however large, prey upon the lion; and though it is alleged that the tyger be sometimes the uppermost in those assaults which these animals make on one another, it is still with sufficient reason that the lion is considered as the king of animals, since all of them stand in awe of him, flee before him, tremble at his voice, and look; and even those that resist him, never dare to attack him. Even man is not safe from his fury, and when the lion is too old to attack vigorous animals, or when urged on by rage and hunger, he darts on every thing that comes in his way, man, ape, or goat. However if he meets with men and animals together, he falls upon the last in preference, and allows the former to escape; if he be not attacked himself; for, in that case, he revenges his offence, and exterminates in a few days a whole family of Negroes or Moors.

Nevertheless, we discover noble and generous qualities in the lion, as gratitude for favours, and a magnanimity that makes him readily forgive offences. He has been seen to despise those of little enemies, and to forgive them a thousand rash freedoms, to spare the life of animals that had been thrown to him for food, and even to protect those that had fled to him. I know some stories of this kind that will give you pleasure when I relate them. But with all that, the lion is still a lion; it is to no purpose that he sometimes shews clemency and pity; it is to no purpose that he is not near so cruel as the tyger and the wolf, and even as the martin and the polecat, which, though satiated with food, are not so yet with murder, and seem to kill only for the pleasure of killing, whilst the lion never attacks an animal, but to satisfy the imperious calls of hunger, and remains at rest when filled: in spite of these advantageous differences, he constantly retains his natural ferocity. What haughtiness, what a commanding boldness, how terrible, in his looks, his gait, his air! what a dreadful roar! it resounds from the depths of the desart like thunder, and every thing trembles and quakes at this dreadful voice. Who can support without terror the sight of his vast mouth, and of his bloody teeth? how much more terrible still do his looks become him in his rage! every thing about him bespeaks it, announces it in the most striking manner. Observe the quick movements of his long and powerful tail, of six or seven feet, that overturns every thing about him; see his long mane that stands erect, and falls down on each side of his neck, his head, his chest; see the moveable wrinkles of his front, and the movements of his whole face, his large eye brows rising and falling every moment; hear the chattering of his teeth, that are bare and able to break the hardest bones; see him, in short, protrude his long tongue, armed with prickles as hard as they are sharp, and turned backwards!

Who shall dare to approach him? no living animal, undoubtedly, if it be not the armed African;

rican; for all the force of the lion yields to the address of man, and when he is taken, particularly young, he is capable of being tamed in some measure. Then he suffers himself to be approached without difficulty by the person who governs and has the charge of him; this person may go under his feet, ride upon his back, open his mouth, and take a hold of his tongue, even cram his head into his mouth, without this monstrous animal doing him the smallest injury.

P. Mercy! how I should be afraid even to see it.

M. I believe it; I have seen many that were older than you afraid when they saw a man's head within the lion's mouth, and, taking their own with both their hands, to satisfy themselves that theirs was not there likewise, run off as fast as they could.

P. But does the lion never bite their head or their hand?

M. In reality, very seldom; and we may say, that this never happens but from the imprudence of the person, who, for instance, may have carried his familiarities too far, and hurt the lion, or else suffered the lion to lick him, as has unfortunately happened.

P. Only for suffering the lion to lick him! how did that happen, dear Sir?

M. The master of a tame lion had a domestick that was so familiar with this animal as to suffer himself to be caressed and licked by him. He had been frequently advised not to trust so much to him, because the lion, who has a tongue like a rasp, would readily take the skin off his hand some day, which would infallibly cost him his life; for as soon as the lion saw blood, or rather when he found it on his tongue, his sanguinary disposition would return, and it must be satisfied with blood: then he kills and devours every thing that comes under his fangs.

Not at all! the domestick did not profit by this advice, and whilst the lion was asleep one night in an apartment beside that of his master, he was amusing himself with his good friend, whilst his master slept. All at once a sudden noise wakened the master; he rose, entered the lion's apartment, and saw between his paws the remains of his servant's carcase, part of which was already devoured, with his arms and legs.

P. And what did the master do when he saw that?

M. He was so vexed, that he instantly called the rest of his servants, and made them kill the lion.

The male lion (Plate X. fig. 8.) is larger than the female (fig. 9.), he has the head, the neck, and the breast, covered with a long mane; but on the rest of the body, he has only short hairs, as the lioness has on the whole of her's. His tail is from six to eight feet in length, and terminates in a kind of tuft of long hairs. His colour is a deep red; his head is large and nearly of the shape of that of a cat; he has a kind of whiskers round his mouth, and his upper lip is cloven. He lives only on flesh, particularly that of the camel and of the ape: and the duration of his life, extends from twenty to thirty years. The lioness brings forth yearly, at most four young.

The Negroes and Moors have a way of catching both the young and the old, not indeed without danger of their lives. To catch the young ones they watch the moment when the lioness is gone in quest of some prey, and then they carry them off with them to raise them at home with their cattle, or to kill them, and eat them immediately. They kill the old ones by the shot of a musket, or with other arms; or else they take them in a snare in pits lightly covered with bulrushes, or with foliage, with a sheep at the bottom, or fixed at the top in such a manner as the lion cannot approach it without falling into the pit. But to see him, when he is taken! how ashamed, confused, disconcerted, disheartened, calm and tranquil as a sheep; he allows himself to be tied, chained, muzzled, and led by an infant. This haughty sovereign follows mildly, with a slow and grave step, the man, that leads him with a chain.

The Africans eat the flesh of the lion, and make mantles and haps of his skin; they even lie under them, and use them for other purposes. Formerly the greatest heroes affected to wear the skin of the lion. In ancient Rome, lions were yoked instead of horses, to the triumphal car, and even to common carriages, since the celebrated Mark Anthony had himself frequently drawn by a yoke of these animals. A great many of these animals were likewise used for publick shows; where they were either employed to fight with one another, or with other animals. But it is alleged that the species of lions is not so plenty now as it was formerly: however, we have no certain proof of this; for it is difficult to penetrate into those vast and burning desarts where they breed. All that we know, is, that they are no longer brought from Africa; for the taste for these bloody shows having long since ceased, there are only a few princes or nobles that keep them in their menages, and a very small number of people that transport them from one country to another for the purpose of showing them, and obtaining money for risking their head in the mouth of this terrible animal: to such sad shifts are the poor reduced, to gain a small share of the necessaries which nature has produced equally for the good of all that live!

P. In reality, it is a sad shift for these poor creatures! but they get a good deal of money too, do they not?

M. It may be supposed that they do get something considerable, and it is fortunate for them that curiosity sometimes gets the better of avarice. But then the subsistence of a lion costs a good deal; for he must have every day twelve or fifteen pounds of fresh meat to satisfy him; so that it is not all profit that is gotten in this kind of business. any more than in others.

But to return to the character of the lion, he roars commonly five or six times a-day to please himself; but he is heard more frequently to please his master. No person is allowed to touch his tail, for fear he might be out of humour at the time; and, if his master was at a distance, might give the person who was rash enough to do this, a blow that would overturn him. There are two things that he cannot bear, to wit, fire and serpents.

He leaves his den only at night to hunt; and as he does not get upon trees, and is not very swift, he is forced to lie concealed, and to watch his prey. As soon as he observes a sheep, a horse, an ox, an ape, so near him as twelve or fifteen feet, he makes a spring, and darts upon it in an instant; then he tears it with his claws, breaks its bones with his teeth, and swallows it with the hair.

P. Ah! but you told us that the lion sometimes

times spared other animals, and you promised us some pleasant stories!

M. As to that, I am a man of my word, you know; this is the first.

A beautiful large lion was shown in London for money; with this condition, however, that such as had not money might still be admitted to see him, provided they brought a dog, a cat, or some other animal, to regale the lion. A sailor, who was curious to see this noble animal, and happened to be out of cash, took up, without ceremony, a beautiful little lap-dog that he met with in the street, and threw it at the lion's feet. The poor little dog, at the sight of this terrible animal, began to tremble and shake, and to creep; in his fright he crawled on the ground, thrust out his tongue, stretched forth one of his little paws to this terrible monster, and seemed to implore his mercy. In fact, the lion understood all this language; far from injuring the humbled lap-dog, he generously took him under his protection, he amused himself with turning him from side to side, sometimes with one paw, sometimes with another; and, in a few hours, they became both such great friends, that the lion no longer eat any thing without sharing it with his little comrade; who, on his part, would not leave the lion, whatever good things were offered him to entice him away. He run about the lion, leapt on him; went under him, got upon him to sleep, and took the greatest freedoms with him. When it came to meal-time, the little impertinent creature would have all to himself, got his paw upon it, fell a growling and yelping, and carried his insolence so far as to insult his benefactor to his face, who was generous enough not to be offended, and always withdrew immediately, to comply with his little favourite. What was worse than that; when this noble animal was going to sleep, the little knave would not give him rest, he run, leapt about him, barked in his ears, scratched his head, often even tugged his ears, and bit him. The lion bore all with the most astonishing tranquillity.

In the mean time, however, the poor dog happened to die. Then it was curious to observe the despair of the lion, how he roared, how he raged in his apartment. He stroked his little dog, turned him, re-turned him, absolutely thought to waken him, to see him alive again. But when he saw his hopes frustrated, he roared most dreadfully, made his very apartment shake, refused meat and drink, took his little dead favourite to him, and pressed it to his breast. This grief continued for five days, and at last terminated in the death of the lion himself, who could not survive this loss, and died after having first laid down his head beside the body of his friend.

P. That is indeed, dear Sir, a charming narrative! it almost makes me weep.

M. In reality, the sentiment of friendship has in it something so congenial to the human heart, that the instances we observe of it never fail to affect us. It is the same with generosity in the great and powerful; it possesses something so noble and amiable, that it naturally obtains and carries off our suffrage. We must likewise add, that these two sentiments are of themselves sufficiently simple and natural; and that, if we are still so easily affected by them, it is to be feared, that their actual rareness contributes very much to this: for, to observe what actually passes in the world, we cannot conceal that they are not common.

Farther, if you liked the former narrative, I shall now give ye a second, that will not appear less interesting; the whole difference consists in this, that it is much older than the former one, for it had its origin in the period of ancient Rome. It is as follows: A poor man named Androcles had the misfortune, like many others, to be reduced to a state of slavery; in addition to this he was the slave of a cruel master, a Roman senator. This senator having obtained the government or proconsulship of Africa, went over to that country, and took his slaves along with him. But Androcles finding himself loaded with ill usage, equally constant as it was unreasonable, resolved to make his escape, and, having found an opportunity, he plunged into the barren desarts of these sultry climes, at the hazard of perishing by hunger or thirst, or of being devoured by wild beasts; a dreadful fate, which he preferred, however, to that of being daily tormented by a cruel master, and suffering, as it were, a slow assassination by his unjust orders. He wandered for some days, enduring hunger and thirst, and all the heat of the climate, and seeking in vain for some shade, where he might repose and refresh himself. A cavern at last presents itself; he enters it, giving thanks to the gods, and seats himself. But he was scarcely seated when he perceived a huge lion enter, walking on three feet, and unable to rest on the fourth, which was wounded, bleeding, and painful, so as to make him roar with fury. As soon as he entered, and perceived Androcles, who, trembling from head to foot, was endeavouring to conceal himself in some corner, he goes straight up to him, holding up to him his sore foot, as if to ask his help, instead of offering him any injury. Androcles understood this mute language, took heart, and had courage enough to take hold of the lion's paw to examine it, and to discover what was necessary to be done. He found it inflamed, filled with bloody matter, and saw that the cause of all this was nothing but a large splinter of wood that had penetrated it, and which he immediately extracted; after which, he pressed out the matter, cleaned the wound, wiped it, and acted the surgeon in the best manner he could. This operation relieved the lion so completely, that he no longer felt pain, and fell asleep beside Androcles, leaving his paw in his hand. The poor fugitive waited patiently till he should awaken, not knowing what might be the result of all this.

The lion awakened; finding his foot easy and without pain, he began to caress his surgeon, and showed such signs of gratitude that the poor man resolved to continue there, to trust on him, and to wait, having no better prospect from abroad. The lion highly pleased with seeing him remain, immediately set off to hunt, and was not long till he returned with a good prey, of which he chose the nicest piece to present to his benefactor. Androcles, urged by hunger, roasted his meat in the rays of the sun, and eat it with a good appetite, as you may easily imagine, after three days fasting. The night was passed in the greatest tranquillity; the following day in the same manner; the lion did not fail to bring him the best piece of his booty, and seemed to take pleasure in regaling him in the best way he could. Androcles at last became gradually accustomed to it, and so well, that he passed three whole years in this cavern, living familiarly and amicably with his lion that fed him.

At last, however, he became weary of this savage life; his old clothes were almost wholly done: he felt an inclination to return to the society of man, to eat bread and meat that was better dressed; in short, after three years of a life, hard indeed, but peaceable, tranquil, and, above all, free from danger, he resolved to leave his cavern, and his singular companion, in spite of those testimonies of affection which he received from him every day. One night, then, after the lion had gone out to hunt, he took the opportunity and departed, keeping nearly in the direction he had come, that he might not plunge himself deeper into desarts, whence he could not extricate himself. He thought that the government of his former master must be expired, and that there must be another proconsul there; so that he naturally concluded, that no body would any longer take notice of him; in a word, that he ran no risk.

The very reverse: he had scarcely left the desarts, when he was perceived by the Roman soldiers, who were dispersed over the whole country. His dress immediately made him be recognised for a fugitive slave who was leaving the desart: he was seized, put in irons, and, as it was soon discovered that he had belonged to the former proconsul, the present proconsul made him be sent in chains to his former master, who was now returned to Rome. This barbarous man, who was grown no better, condemned Androcles to the severest punishment, and ordered him to be exposed to the wild beasts at the publick games, according to custom.

P. Ah! the poor Androcles! and was he exposed then to the wild beasts?

M. After some days, the people were presented with a public exhibition in the amphitheatre, where, among other terrible animals, was exhibited a huge lion, that was superior to all others. This was the lion that poor Androcles was to contend with, armed, according to custom, with a small dagger, that could not hinder him from being devoured, but was only intended to prolong a little the combat, for the amusement of the spectators. They looked upon this beautiful lion with pleasure, mixed with a degree of terror.

But how great was the astonishment of the whole assembly, when they saw this lion, instead of springing furiously upon the unfortunate criminal, first stop to consider him with a degree of surprise, then approach him with a gentle and friendly air, fall a fawning and licking him, gently wagging his tail, like a dog on the arrival of his master ; in short, give him the most marked, the most lively, the most singular expressions of friendship. Poor Androcles accustomed, as he was, to the sight of a lion, expected so firmly that he was to be devoured this time, that fear had taken possession of him, and he had not perceived the least of all this. At last, however, on being gently pulled by his lion. . . . .

P. Ah! was it not his own lion? I thought so before. But how happened his lion to come to Rome?

M. I shall tell you the whole immediately. Androcles then, relieved from his fears by the kindness of the lion, at last had courage to consider him, and immediately recognised his companion of the desart, with whom he had lived amicably for three years. He no sooner recognised him, than he began to caress him on his part, to embrace him, and to return his friendship.

ship. At this new spectacle, at this unexpected scene, the people gave themselves up to shouts and applauses. Their astonishment, however, was great, and every body was curious to know the cause of this singular event. The Emperor himself who assisted at the games, and who was named Caligula, wanted to be informed why the most terrible of the lions shewed favour to this man, after having devoured so many others, and made Androcles be called. After hearing the whole history, those who assisted at the games were so charmed with it, that they entreated of the Emperor Androcles's pardon, which the Emperor immediately granted, at the same time, making him a present of the lion. Then poor Androcles, doubly happy, went through the whole city with his old companion tied only with a bit of twine, and received money, or other things, from every person.

Thus, we must suppose, that the lion had been taken in a short while after the fugitive slave, and brought to Rome for the games. For, on the one hand, the Romans who drew from Africa all the lions that were used in their shows, kept always a number of people in that country employed in hunting them; and, on the other, it is probable, that the lion, grieved at no longer finding his deliverer and three years companion, would fall a-seeking for him; so that, by coming out of the middle of the desart, and approaching the habitations of men, he would be among the first to be seen and taken.

There are several other instances of the gratitude of the lion: but the one that I have just related, it must be confessed, is the most remarkable. It is contained in an old Latin author, named Aulus Gelius, where you may perhaps read it yourselves some day.

THE TYGER.

THIS animal is much more ferocious and terrible than the lion, not by his superior strength, but by his extreme cruelty and agility; for he is the most agile, as he likewise is the most sanguinary and cruel of the quadrupeds. The lion does not always kill, but only when he has occasion, and, besides, sometimes shows clemency: but the tyger, without being pressed by hunger, tears in pieces every thing that comes in his way, men and animals: when satiated with flesh, he is not satisfied with carnage, and knows no other bounds to his fury but the want of objects to exercise it on. When urged by hunger, he falls upon his own young, and even on the female, when ſhe offers to hinder him.

This destructive animal is only found in the warm climates of Asia, and particularly in India. Its hair is of a yellowish white, with black stripes in the form of belts; its body is longer and thinner than that of the lion, but lower on its legs. It not only runs inconceivably fast, but likewise takes leaps of ten or twelve feet, and clambers up trees in quest of apes and birds; when it catches the last of these, it is careful to pluck them before eating. The tyger (Plate X. fig. 12.) is so strong, so nervous, that it will seize a horse, or a buffaloe, and drag it with as much ease as if it were only a young hare between its teeth. The tyger will even attack the largest elephant, and, after having torn off his trunk, he gets on his back and tears him ; the conquered elephant has no other resource left but that of crushing his cruel enemy, by turning himself on his back which does not hinder him from perishing himself.

The tyger has likewise been tamed: but what patience and care it takes before a man comes the length of daring to open his mouth and take his tongue in his hand ! however, he never suffers any person to mount on his back. The female tyger produces every year three or four young, like the lioness, and these two species have nearly the same duration of life, The Indians eat the flesh of the tyger, and make much use of his beautiful skin; it is likewise used in Europe for covers to saddles, and is very high, in consequence of the scarcity of tygers.

THE AMERICAN TYGER.

It is likewise called the tyger-cat of America, *jagouar* in the Brasilian language, and *ounce* by the Portuguese (though *Bomare* and *Buffon* make a great distinction between the ounce and jagouar). This animal is not larger than a shepherd's dog, but it resembles much the tyger of Asia, both in its figure and dispositions.

THE LEOPARD.

This is likewise an African animal, smaller than the tyger, but much more beautifully variegated, and equally cruel. The Africans eat its flesh, and make some use of its skin, but they seek less to kill them than to take them alive, to sell them to the Europeans, who are prodigiously taken with the beauty of this animal (Plate X. fig. 13).

THE PANTHER.

This, like the former, inhabits the warm climates of Africa. Larger than the leopard, it cannot compare with him in the beauty of his robe, because the spots upon it are sometimes rounded, sometimes angled, and of several other figures. This animal is likewise famous for its ferocity; the opening of its mouth is frightful, and its cry is still more dreadful than the roar of the lion (Plate X. fig. 35).

THE MOUNTAIN CAT.

This is likewise called *serval* in India, and *mazaputé*, or *maraputé*, at Malabar. It is a fierce animal, nearly of the size and figure of a wild cat, and which inhabits Africa and India; where it lives, it is said, on trees; leaps like a squirrel, from one tree to another, with surprising agility pursuing the same prey as the lynx and the wild cat.

THE DOG.

The qualities bestowed by nature on this animal, have rendered him very useful, and even necessary to us. He grows extremely familiar with man, and becomes so attached to him, as to be considered, of all animals, the one that we can most depend upon for fidelity and attachment on every occasion. The dog is obedient, docile, complaisant, does every thing that we wish with alacrity, and without murmuring, is satisfied with an old dry crust of bread, or a bone to pick; does hurt to nobody; watches day and night in the house, and will risk his life in defence of his master.

This animal actually forgets the bad treatment he receives from man, and retains long a remembrance of favours. It is no matter that he has a hard and cruel master, who, instead of giving him food, strikes and torments him; far from thinking of taking the smallest vengeance on him, he has not even the thought to leave him; and after seeking with risk some miserable food, he returns to follow him. If he has committed a fault, he comes to crouch at his master's feet, and to implore his clemency; but if he be not fortunate enough to obtain it, he submits without murmuring to chastisement, and the next instant humbly licks the hand that punished him, recovers his gaiety, ceases his complaints, shows himself more obedient than formerly, runs at the voice, waits the orders of his master with an ear attentive and pricked up, flies on the first signal, guesses on the slightest motion of the eye his inclinations, and executes them punctually.

Does he lose his master? he groans, he howls in the most doleful manner, and gets no repose till he find him; he discovers his track, pursues his steps to the distance of three or four leagues, and finds him out in the midst of the greatest crowd. A good dog not only knows the voice of his master, but even distinguishes his name, when pronounced by others ; he knows also the voice of every child and domestick in the house; and if a stranger arrive, an unknown person, he follows him, he announces him by a great noise to every person.

What important services does not the dog renders us besides : a vigilant seutinel, he informs us of every thing that comes near us or our habitations ; a faithful guardian, exact and strict, he defends our flocks, gathers them, conducts them ; unwearied in the chace, he renders us masters of, or assists us in subduing, a number of other animals. And what things may he not be taught? how many manages may he be trained to ? He dances on end, or even on the rope, plays tricks, tumbles, stands on his head, beats the drum, goes two or three leagues to seek things that have been forgotten, or lost ; he may eveu be harnassed, and yoked like a horse to sledges.

Observe him following a flock of sheep, goats, or hogs ; what vigilance, what attention, what fidelity ! what order he preserves in their march, both in going to, and returning from, pasture ! Arrived at the ground, he is not a moment idle: he is constantly employed in collecting the sheep that stray, in keeping off wild beasts, or other enemies, that offer to come near ; his voice frightens these, or collects the flock, better than that of the shepherd : and in all his different attentions, he never waits for orders ; they seem to be natural to him, or he seems to have got his lesson by heart.

It is the same if he be employed chiefly as a guard to houses ; an employment which commonly gives him the appearance of boldness, or even a degree of ferocity, which he otherwise does not possess. He does not shut his eye the whole night, and is constantly occupied in making a tour round the precincts entrusted to his charge. He keeps off every thing that he suspects, or that he is not acquainted with; or if any thing of this kind approach, or attempt to enter by force, and produce any disturbance, he darts upon the robber, endeavours to stop him, bites him, tears him, or, if his efforts prove ineffectual, he barks so strongly, so constantly, rages and makes such a noise, till he have alarmed every body. In a word, the person of his master, his house, and every thing that belongs to him, are sacred objects, which he will not suffer to be meddled with. Wolves, foxes, martins, are likewise his enemies, which he drives away with the same care and the same bravery. He attacks them, bites them, wounds them, and rescues from them the prey that they were about to carry off. Then, satisfied with his victory, he lies down calmly near the spoil which he has preserved for his master, and waits, with impatience, his arrival.

And in journies, what services do dogs render us? a single one is of more consequence to our safety than ten domesticks; he allows no person to come near the baggage, or the apartments, and still less the person of his master, and watches carefully over every thing that belongs to him, or is near him.

But I must relate to you some instance of the attachment, of the fidelity, and intelligence of the dog.

P. Ah, yes! dear Sir, some fine story.

M. Attend. A merchant in one of the provinces of France, who had some money to receive, set off on horseback, attended by his dog, for the city, where he was to get his cash. He arrives, gets the sum, which might be about five hundred crowns, and when he was about to return, tied the bag on his horse, then mounted him with an air of satisfaction, and took his road home. His dog, that seemed to guess at his masters joy, and even at the cause which produced it, took part in it as well as he could, run round his horse, barked, leaped; one would have said he was wishing his master a good journey. They were about half way, when the merchant alighted, tied his horse to a tree, took his bag containing the money, and halted beside a hedge, after having first laid down the bag on the ground beside him; but when he was going to remount his horse, he forgot his bag, and left it beside the hedge.

The dog, however, who observed all, and had not left him, perceived his neglect, and wishing to rectify it, ran to the bag of money, attempted to take it in his mouth, or at least to drag it; but it was too heavy for him. He then flies back to his master, takes him by the clothes, gets before him, and tries to hinder him from getting on horseback; crying, barking, howling, biting even, all to no purpose: the merchant understood not his language, pushed him off, and mounted his horse. The dog was not discouraged: he run at the horse's head, lay down in his way to prevent him going forward, barking with all his might, and, at last, went the length of biting him five or six times.

This produced quite different ideas in the merchant, and made him fear that his dog was gone mad. Full of this thought, which afflicted him, he observed the dog, and saw that he continued to bark, and to bite the whole way; on arriving at a brook, he crosses it with his horse, and turns back to see if his dog would drink; not at all, the dog does not stop a moment, runs out of breath after the horse as formerly, barking, leaping, and biting always. Heavens! cried the afflicted merchant, it must be so! my dog is mad, there is no doubt of it; the poor beast! I must kill him! what regret it will cost me! he was so faithful, so attached to me .... no matter, if he was to meet any person, and to bite him, this misfortune would be much worse than the first; come, there is no room to hesitate .... Were some other person but here to do this cruel office for me! my poor dog! .... But why? if he should come this moment to bite myself! come, there is no time to lose.

Saying these words, he draws a pistol, aims with a trembling hand, and, at last, taking courage, fires it off; but, at the same time, turning away. The poor animal falls down deadly wounded, struggles, and, weltering in blood, still crawls towards his master, as if to reproach him with his ingratitude. The merchant sets off instantly, with regret and chagrin at his heart; after a few steps, he returns to see his dog again: the poor animal observes him, and by the movements of his tail, seems to wish to bid him his last adieu.

P. Ah, dear Sir! the poor dog!

M. I am not surprised at seeing you weep; I can scarcely refrain from it myself, and every time that I think of this story, tears come into my eyes. The merchant put spurs to his horse and went off, much chagrined and distressed with this melancholy adventure, so that he did not wait to halt again, and fell a thinking if there still might not be means left to save the poor animal; but the persuasion that he was mad, and of course the fear of being bit by him himself prevented him, and he went on.

Still, however, he was far from being easy; the image of his faithful dog, dying by his hands, seemed to follow him every where; grief took more and more possession of his heart; and he would have given a great deal to see him return alive. A hundred times he cursed his journey, and called himself unfortunate: but no! returned he all at once, I have made a good journey since I have got my money; it is very unfortunate though that this same journey should cost me my poor dog, and in a way so distressing! . . . . . And as he said this, he was going to lay his hand on the bag with the money, to console himself in some measure. No bag! Then it was that he opened his eyes and cursed his haste, his stupidity, his cruelty. Wretch that I am! cried he, I was a greater beast than my poor dog: I could not understand the language of that dear animal, one of the best of my friends, the most faithful, the most intelligent! this then was what he wanted to say, this was what he wished to tell me. . . . .

And instantly he turned his horse, gave him both the spurs, went off at the gallop, till he came to the hedge near which he had stopped, still more disconsolate than formerly, and not able to forgive himself what he called a cruel murder. He saw the place where the cruel scene passed, he perceived the traces of blood, he saw them continued along the road, and felt himself grieved, oppressed, distracted; but in vain did his eyes seek for the dog, he was not to be seen. At last he arrived at the fatal place; he hurried behind the hedge. . . . . Ah! this stroke made his heart bleed more than ever. . . . .

The

P. The bag was there no longer?

M. You cannot imagine what he saw. The bag was there, but the poor dying dog was there likewise; this faithful animal, no longer able to see again his dear master, had at least wished to consecrate his last moments to him, and had crawled all bloody to the forgotten bag, to guard it, and to die beside it. When he at last saw his master, all weak and dying as he was, he still testified his joy to him by the movements of his tail, though unable to rise; and feeling himself caressed by that cruel and dear hand, he had at least the pleasing consolation of dying while he licked it.

P. Oh! If I had such a dog; how I should love him!

M. We may believe that several kinds of dogs have this degree of intelligence and attachment; but occasions do not always offer of giving such striking proofs of them. Besides, there are many dogs that are not designed for watching, or for following us. Some are so fat and unweildy that they can scarcely move: and it is clear, they are fed only for the pleasure taken in having them. The same may be said of lap-dogs and other small dogs: it is easy to see that they are neither made for guarding a house, nor for defending their master on a journey; for following horses at the trot, or resisting robbers, and the powerful mastiffs with which they are often accompanied.

P. But, dear Sir, are there many species of dogs?

M. Many, which differ both in size and figure; for instance, the shepherd's dog or house-dog, the terrier, the pointer, the greyhound, the bull-dog, the butcher's dog, the Turkish dog (the same species which we mentioned before, and which is so common in the city of Cairo, where they take great care of them on account of their eating the carrion), the lap-dog, and many others.

The shepherd's-dog has the ears small and erect, and long hairs at the lower side of the tail, which is turned up. Plate V. fig. 28. and Plate XII. fig. 33.

The turnspit-dog, with legs short and crooked, muzzle and body long, the ears pendant. Plate XII. fig. 40.

The water-dog, with flat nose, long hairs, but curled; he enters the water readily, brings out whatever is thrown in, and is considered as the most faithful of all dogs. Plate XII fig. 34.

The pointer has the tail short, and the skin spotted, with white and with black or brown. Plate VII. fig. 12. and 24. and Plate XII. fig. 38.

The greyhound stands high on his legs, has the belly lank, the body slender, the tail with smooth hair, and the legs very slender. Plate XII. fig. 39.

The mastiff has the muscles strong, and the members nervous, the lips large, hanging down, and slavering. When he lives in freedom, he is gentle and peaceable, like other dogs; but when kept in a chain, he is fierce and formidable, leaps upon men, and throws them down. Plate XII. fig. 32.

The English bull-dog, the largest species, is even reckoned the boldest and most vigorous of all dogs: he is known by the muzzle, which is rather longer. Plate XII. fig. 41.

The lap-dog is a pretty little small dog, ~~with~~ long silky hairs, that many people are fond of, particularly ladies, who carry them under their arms, or in their muffs. Plate XII. fig. 36.

The lion-dog is likewise a little animal, a favourite of the sex, and distinguished by long hairs on its neck, which have procured it this name. Plate XII. fig. 35.

Thus, as the bull-dog is the largest of the dogs, since he is almost the size of a horse, the lap-dog is the smallest.

Dogs are found in every country of the world; but there is no country where they are seen gathered in such numerous packs as in Egypt, Greenland, Kamschatka, and near Hudson's Bay. The Greenlanders keep flocks of them, as we do sheep, of several thousands, which they feed with moss, with muscles and other fishes, &c.

P. But, dear Sir, what can they do with so many dogs? it would be better to have sheep; would it not?

M. And why that, my dear young friend, since they derive the same advantage from them that we do from sheep? they eat them and find their flesh very pleasant. . . . . .

P. Goodness! eat dogs?

M. That shocks us, because we are not accustomed with it; but it is not impossible but the the flesh of the dog may be good to eat. It has happened sometimes that people have been obliged to eat it from necessity in want of other meat or food, and did not find it so bad. This happened, among others, to the celebrated captain Cook, when he was at sea, and recovering of a disease. There was no more meat nor live stock on board, and the only animal that remained was a single dog. He was advised to make soup of it, and make use of the flesh; as Cook was no milksop, he ate it without ceremony, and convalescent though he was, found it very good. Thus we must not imagine that there is nothing good but that with which we are accustomed.

However that may be, the Greenlanders, the inhabitants of Kamschatka, and of Hudson's Bay, likewise make another use of their flocks of dogs; they employ them to draw their sledges: they yoke eight or ten of them together to draw one of these laden with five or six sea dogs, and two fishers, and even make visits in these kinds of equipages. Four good dogs cost at Kamschatka seventeen crowns, and, when completely harnassed, three-and-twenty. In the northern countries, and particularly in Greenland, dogs do not bark, they only growl and howl a little. Travellers say the same of the dogs of warm climates, and we read in *Bossmann* that the Negroes of Africa, when they see an European dog that barks, imagine likewise that it can speak.

In Asia, and particularly in India, dogs are fattened to be carried to market, and, in exchange for a good fat dog, you may get from ten to twenty slaves. But in Europe, at present at least, the skin of the dog is only used, either by shoemakers, by glovers, or other artisans.

The female commonly has two births yearly, of four, eight, or twelve young, each, which are brought forth with their eyes shut, and do not open them till the end of nine days. Dogs, when they do not meet with any accident, live commonly fifteen or twenty years: but they are seldom allowed to live so long, because, at that age, they are more subject to grow mad.

P. Ah, dear Sir, whence does it happen that dogs grow mad?

M. There are ſeveral causes that produce in dogs this disease, so dreadful in its effects, and so dangerous to man: for instance, eating and drinking too warm, the too great heat of the season, and the want of water, or the drinking spoiled water, or the eating putrid meat. To these are added, certain irregularities of the seasons, because it has been remarked, in a spring that was colder than common, that this disease was more frequent than usual among dogs; there are probably many other causes that we are entirely ignorant of.

P. But how do we know that a dog is mad?

M. A mad dog has a sad, dejected look, seeks solitude more than usual, conceals himself, lies down, refuses meat and drink, goes with a listless air, with his tail and ears hanging down; he does not bark any more, but only growls; he attacks animals, and even men, suddenly, and without shewing symptoms of anger; however, while the attack of the disease is still moderate, he does no injury to his master.

But if he begin to slaver, if his mouth become frothy, if he loll out his tongue, if he do not know his master, and attack him unexpectedly, as he does every thing that comes in his way, springing both on the right and left, unless avoided; if he go with an irregular step, appear as if drunk; if his eyes be red and inflamed, hagard and troubled, his tongue almost blue; lastly, if he have a horror at water, a symptom that is reckoned characteristick of the disease, and whence it has got the name of hydrophobia; then, for certain, the dog is mad, or has a hydrophobia; and, if he be not killed, will not live above twenty-four hours.

But it is extremely dangerous to allow him to live a minute after the decisive symptoms of the disease have made their appearance: for he darts upon every living thing that comes in his way, men or animals, and communicates to them the same disease; against which, unfortunately, there is no certain remedy, and which commonly, in the course of two or three days, or thereabouts, terminates in the most miserable of deaths. However, there is one method of preventing this disease, if employed in time. The first thing to be done is to cut out the part that has been bitten, completely, with a knife; and afterwards by means of irritating ointments, to induce a suppuration on the wound, which may be kept open for some weeks.

THE FOX.

THIS animal is but too well known for his stratagems and artifices. He uses violence when he is the strongest; but, if he be not, he endeavours to be the most artful. Thus, he exercises his patience betimes, that he may not precipitate himself into ill concerted enterprises that would expose him to become the victim of men or other animals.

P. But is it true that the fox catches lobsters with his tail?

M. Ah, truly, he takes a very different method! you shall see, you shall see. The fox is about the size of a middling shepherd's dog, and has even much resemblance to him. See Plate I. fig. 8. and Plate IX. fig. 19. His hair is red (though there be likewise foxes grey, white, and black), his tail long and bushy; he lives in holes in the earth, and is found in all the countries of the north. He eats all kinds of fowls, as hens, pigeons, geese, ducks, and also hares and rabbits, and likewise eggs, milk, cheese, butter, when he can get them. But when he cannot meet with such good fare, he contents himself with rats, mice, serpents, lizards, toads. He is particularly fond of grapes and honey: thus he lays waste bee-hives when he can, and goes in quest of honey to nests of wasps and hornets. It is in vain for these animals that make honey, to make him feel their stings, on all sides, and particularly under the belly, where his skin is tenderest; nothing discourages him; when completely covered with them, he goes and rolls himself on the ground, and rubs himself against trees and bushes, and soon he has them all crushed and eaten. Then he returns to the charge, crams his tail into the hole of the hive, or of the wasp-nest, till it be well loaded with these animals, and then goes again and beats it against trees and stones, constantly eating the animals as they fall down dead. He repeats this operation so frequently, that, at last, he either depopulates the habitation entirely, or so, that the few which remain are obliged to abandon it, and go to seek their fortune elsewhere. Then he regales himself at his ease with the honey, and even with the wax, eating the combs entirely.

He seldom troubles himself with digging his own hole in the verge of a wood near farm-houses and hamlets. He rather dislodges some badger or some rabbit, and then it costs him but little trouble to model it to his taste, and accomodate it to the use of his own family. The female brings forth yearly four or six young, which she suckles a fortnight; after which, the male feeds them with pigeons, hens, cheese, and other provisions of that sort, till such time as they be strong enough to follow himself to the chace, and to learn, under him, the grand art of knavery.

ry. Thus, he always makes choice of his abode near villages, whence he may hear the crowing of cocks, and the clucking of hens, and already feast on them in idea, whilst he watches the favourable moment for making them his prey. He plays his tricks only at night, and conducts himself on his march with all the prudence, circumspection, vigilance, of the most experienced marauder. He first goes upon the discovery, and informs himself exactly of the country he wants to lay under contribution, visiting the hamlets and neighbouring villages, as also the farm-houses at a distance, with all their nooks, corners, and environs; on his rout he takes care to note the houses where poultry are kept, such as are guarded by dogs, as also that he can penetrate, either by leaping over hedges, walls, partitions, gates, or by making his way through them, or under them; and, lastly, the strongest retreats that may serve him, in case of pursuit. After having properly ascertained every thing, he loses no time, but commences his expedition; he clears a wall, or digs a passage for himself underneath, enters the court-yard, runs to the poultry-house, kills at a single hasty bite every thing that offers, hens, cocks, geese; then, instead of feasting himself with delicate morsels on the spot, he begins to carry off a bird or two, if he can; goes and conceals them in some distant corner, that he has observed before, returns for another, then hides it; makes a third and a fourth journey, till such time as he has all carried off, and neatly disposed; or at least, if he have too much booty, till the approach of day, or the movements which he hears in the house, advertiſe him to return no more, nor even suffer himself to be seen. In this way he collects in a single night, provisions for several days; but he does not continue idle on that account, waiting till they be consumed; he goes upon new discoveries in the night, and plans new resources for himself.

He is no less expert in taking wild birds in their nests, and he has particularly the art of seeking out those places where bird-catchers spread their nets and their lime-twigs. As he cannot make them himself, he takes care to profit by the industry of man; and he is perhaps the only animal that has cunning enough to turn the address of man to his own advantage: at least, it may be said to be the master-piece of animal instinct. He watches every thing that goes on; does not fail to visit the nets and twigs before the bird-catchers; and, if he find any game, as a wood-cock, thrush, partridge, or any other, he carries it off entirely.

P. Admirable! that's a good trick of the rogue!

M. It is one knave cheating another; and he likewise carries off a great deal of the game in the open fields: for he easily takes hares in their form, and sometimes he diverts himself with hunting them, when they rise at his approach: he, with the utmost ease, catches rabbits in their holes, and destroys whole families of them; as to patridges, quails, he makes nothing of finding their nests, and eating them with their eggs or their young.

But he sometimes pays well for all these tricks, and we must not suppose that he is constantly allowed to play the knave with impunity. Dogs, huntsmen, peasants are frequently at his heels, and pursue him sometimes for whole days without intermission; and several are killed. Artful though he be, snares and springes are laid for him with so much address, that he is caught in them like a simpleton. It is true, that he gives much trouble and exercise to the huntsmen. He must first be chaced, run down, and forced to stand at bay, before he can be taken; as long as his breath remains, he never yields, never surrenders. People sometimes try to take him in his hole; but, whilst they wait at the mouth, the knave falls a digging on the other side; in an instant makes another hole for himself, makes off with his female, and his young, and gives the huntsmen the slip. Perhaps they discover him in his new retreat, they take their precautions better, they block him up on all sides, they encompass him completely, and lay snares every where, so that it is impossible for him to escape. In this extremity, he has no other resource but his patience; he will remain for a whole fortnight without coming out, suffering famine and want, to weary the huntsmen, and make them believe that he is gone, and still does not neglect to seek some hole to make his escape at, if possible. If he see at last that nothing will do, and that he has no other alternative, but to die of hunger in his hole or to come forth at every hazard, he comes out, and defends himself to the last breath, without uttering a single complaint or cry; if he cry sometimes of pain, it is only when he gets a shot that breaks some of his legs.

The fox will live twenty years, and is difficult to tame. When killed in winter, his fur is very good, and his tail even is used for several purposes; it is put into muffs, it is put round the neck. But in summer the hair soon falls off; and, for that reason, the skins are then taken to the hatters. The black foxes of Norway, of Lapland, and of Sweden, furnish one of the finest and most valuable furs; the hair of these is so fine as not to lie in any particular direction, but falls always downwards, whatever way the skin be turned. Some of these furs sell as high as a thousand crowns a-piece.

P. But you have forgot to tell us how the fox takes lobsters?

M. In reality it would make a large volume, if we were to detail all the artifices of the fox; but I shall just mention other two. We shall begin with the way that he takes to get rid of the fleas at once, without the trouble of seeking them out, either with his muzzle or his feet. In every thing that the fox does, there appear sparks of intelligence that seem to raise him above the group of other animals. When he finds himself too much harassed by fleas, he takes a little tuft of dry moss in his mouth, and goes to the water, into which he enters backwards, and only dips at first the tip of his tail; the fleas upon it retire to the dry part, and the fox dips by degrees the rest of his tail into the water, so that the fleas retire from thence towards his body; he then begins to dip his body into the water, but in the same gradual way, to give the fleas time to retreat to his head. He continues to advance into the water backwards, and the fleas come all together to the extremity of his muzzle, whence they soon pass into the tuft of moss which the fox holds with his fore teeth. At last, when immersed in water to the extremity of the nose, and when he feels all the fleas in the moss, he quits at once the tuft of moss, and goes off, leaving the fleas in the water. Is not that ingenious? Thus it has been found useful to imitate him, when we have a dog that is plagued with fleas, which we wish to rid him off; we put a sponge into his mouth, and put him into the water in the same way, backwards and slowly, till the fleas have all got into the sponge, which is then left in the water. But it would frequently happen, that the fox would perform this operation in some river where there were lobsters. These would catch his tail with their claws, so that, on coming out, he would frequently bring out numbers of them, which he would go to crack in some corner; he would afterwards return to dip his tail in the water, among the stones where the lobsters lie, and wait till it was well loaded again, to withdraw it and feast himself a-new.

Sometimes he thinks proper to stretch himself on the ground with his four feet sticking up, and to counterfeit death, holding in his breath; so that, if any bird of prey perceive him, he takes him for dead, and does not fail to fall upon the cunning knave, who instantly snaps him, and twists off his head. At other times, when he finds himself too long pursued by a dog that presses on him, he stops a moment, pisses on his tail, and at the instant when the dog expects to seize him, the fox, with this besom, sprinkles his eyes, so that the other cannot see a bit, and, from the pain which remains, is obliged to stay behind, whilst master fox makes his escape.

THE WOLF.

As the fox is not very large, and of course not endowed with great strength, it is not to be wondered at that he has so often recourse to stratagem. But the wolf, which is as large as a butcher's-dog, trusts more to his strength, and but seldom unites cunning with violence; whence it happens, however, that he more frequently misses his mark than the former, and is more exposed to want.

The wolf is a very formidable animal, that is afraid of but few others, and that attacks large cattle, without being intimidated by the sight of man, even attacking man himself when urged by hunger, and devouring women and children. He is nearly the shape of a large mastiff, of a red colour, though there be some that are quite white, and others quite black; he lives twenty or twenty-five years, and inhabits most countries. The female produces yearly from four to seven young at a birth. Plate VIII. fig 26.

The wolf is the most bloody and the most insatiable of animals; he not only attacks men and cattle, but likewise digs up carcasses. Thus, perpetual war has been declared against him; a price has been set on his head; and, if we have not been able to destroy entirely the species, we have at least banished them to the wildest and least frequented districts of Europe, where they are even found but seldom. Germany, Britain, and Ireland, have long been rid of them, as is said at least; but in France, where the inhabitants have not been at such pains to destroy them, some of them are still seen from time to time. Norway is still infested with them; they are likewise found in Switzerland. Asia and America have also their wolves; and Africa in particular, is stocked with them; because the negroes are afraid to kill one of them, on the idea, perhaps founded in experience, that the others will come to avenge his death.

During the day, the wolf remains in the woods and conceals himself in the thickest parts of the forest. He comes forth only at night, falls upon the flocks that are kept in the fields, or tries to enter the folds, or hunts wild animals, and lies in ambush for them as they pass. We observed that he attacked men, and particularly women and children: nevertheless, when he can find plenty of sheep, goats, or other animals, he does not meddle with men, and even shuns their sight.

On coming out of the wood, he is careful to snuff the wind, and to scent a certain extent, to direct his course to that quarter whence he derives notice of some prey, by the exhalations of animals, or of carcasses, brought him by the wind. His smell is so extremely acute that he never goes upon chance, and always knows exactly, not only on what side to find any thing, but likewise whether the prey be near or distant, whether the animal be running or reposing; then he goes like an arrow, either to take it in its form, or to hunt it, without taking notice of the small animals that may be under his feet, as frogs, rats, field-mice, which he despises, for the goat, the sheep, or the roe-buck.

If the wolf find himself too weak to master any considerable prey singly, or, if it be too swift, he takes his female along with him: she hunts on one side, and he on the other, and, in this manner, the roe-buck fatigued, necessarily falls into their claws. But if the animal be too large or too strong, as a bull, or some strong mastiff, then several wolves assemble to attack it; and when the expedition is ended, the prey devoured, each retires apart; for they never unite in society.

He has likewise another artifice to catch animals that are too fleet for him in the chase; it is to lie in ambush in the thickets, or in the herbage, and to wait for it as it passes; the roe-buck comes without suspicion to brouze on the foliage or on the herbage, and the wolf darts upon him. He does the same to catch calves and foals, and if he be compelled to seek some prey that is shut up, he attempts to dig a passage in the ground, that may lead him to the place, whence he wishes to carry off the animal.

He is also obliged to make use of stratagem to attack with advantage whole flocks, guarded by dogs and shepherds, from whom he has himself to defend. In this case the male and the female go together; she presents herself on one side to the dogs which immediately pursue her, and whilst she leads them off in pursuit of her, on the side opposite to that in which the male lies in ambush, he suddenly springs forth, seizes a sheep, and carries it off, in spite of the shepherd, who is neither able to overtake him, nor to take his prey from him, if he had the resolution to attempt it. Thus, it is not good to be a shepherd in countries where there are wolves.

It is true, that the people lay snares for him, that they dig pits to make him fall into them, and that they hunt him to the very utmost with dogs; but frequently all this fails, and the poor shepherd has often the mortification to see a lamb carried off under his very nose by this robber. It is alleged, however, that a certain method to frighten him away, is to exhibit fire, and of course in these countries where wolves are common, shepherds and travellers never fail to carry about them the materials neceſſary to strike fire the moment that a wolf is heard or seen.

It is alleged, that, in Africa, the lion and the wolf sometimes go a hunting together, A traveller relates that he frequently heard the howling of wolves beside the roaring of lions, and that he was once a witness to the depredations they commit in society, not without fear for his own person Being obliged to pass the night in a negroe's hut, he was just going to lie down, when he heard a lion and a wolf run suddenly up to the hut; he afterwards heard them get on end and mount upon the roof, where the opening commonly is, which serves at the same time for admitting the light, and for excluding the smoke. As some fishes were hanging for the purpose of drying near this hole, each of the robbers took one, and went calmly off with this booty not to return for that night *.

P. And they did no injury to the people that were in the hut?

M. They were even so discreet as not to enter it, and you will undoubtedly find that these two robbers had shewn more civility at this time than they commonly do.

P. Ah! that's a jest; it is not true that, dear Sir?

M. It is not civil to tell people that they lie; but we may often doubt of the truth of what is related in books, particularly in books of travels. This story is related by Adanson, as having happened to himself; we may very well dispense with going there to ascertain the truth of it, and the most credulous will give him credit with caution.

The only benefit that we receive of the wolf is derived from the use of his skin: it is made into coverings for horses, furs, muffs, and other things

---

* Voyages to Senegal by Mr. Adanson.

things of the same kinds. His flesh is ill tasted, but still there are conutries where it is eaten: The teeth are likewise set in a haft, and used for polishing different things, by goldsmiths, engravers, gilders, stone-setters, book-binders, &c. There is likewise another use made of the teeth, but which is reprehensible; they are given to young children when they are getting their teeth, because, by constantly putting them between their gums, they assist the teeth in cutting the gums; but the use of such hard substances, and also of ivory, is found to be hurtful, and there are many others that answer better, that are known to all the world.

THE JACKAL.

THE yellow colour of this animal has likewise procured it the name of the golden wolf; it is the size of the fox, and is found in Africa and in the Levant, where it preys upon small animals, and even upon human flesh, when it can get this, as on young children, or carcasses which it digs up (Plate XII. fig. 42). It has been thought that this is the animal that Samson made use of to punish the Philistines: For, as the jackals go constantly in large troops, it would be easy for this Jew, with his companions, to collect three hundred of them, and to tie them together by the tails, fixing fire brands between them, and afterwards to let them loose among the corn, the vines, and the olive plants of the Philistines, and to set them on fire.

THE

THE HYÆNA.

THIS ravenous animal, without being one of the largest, is still one of the most formidable. More furious by far than the wolf, it is neither afraid of the tyger nor the leopard, and even defends itself against the lion. It seeks its prey both in the night and day, and though it sometimes eats the young roots of trees, it is, however, insatiable of the flesh of animals, and even of that of man. It is unfortunate for the country that this monster inhabits, if it be once satisfied with this; it becomes then so eager for carnage and blood, that, in a short while, it will destroy large flocks of cattle, and devour a number of people; nor does it cease its rapine so long as its eyes, or other senses of hearing and smell, give it notice of any thing to be killed. Nor has it less appetite for carcasses: thus, it digs the church-yards several feet deep to come at them; it likewise attends armies to the field of battle, where it finds a number of carcasses, either above ground or scarcely covered.

The hyæna inhabits only the warm climates of Africa, and of Asia; for, though this name has been bestowed on some carnivorous animals of a singular shape that have appeared occasionally in France, and have committed depredations, similar to those of the hyæna, there is still reason to suspect that they were different. It has longer legs than the wolf, the body thicker, the hair of a yellowish brown, the ears long and naked, and the muzzle flat. Plate X. fig. 10. It lives in the holes of rocks, or in holes under ground, and the duration of its life is from twenty to thirty years. It goes almost constantly with the head low; and as its neck is stiff and short, it is obliged to turn the body to look to one side, in the same manner as the hog and the crocodile. It can support hunger for an astonishing time, and leap to a prodigious distance; two qualifications which increase greatly the difficulty of taking it, and the danger of the pursuit. A hundred or two hundred peasants armed with stakes and stones, and accompanied with a number of dogs, have been frequently seen to chace a single hyæna, without being able to take it; even companies of soldiers and huntsmen better equipped, have frequently met with no better success.

The flesh of the hyæna is very ill tasted, and its skin is not of much use. It is impossible to tame it, however young it be taken, and whatever method we make use of. It is seldom brought alive into Europe.

THE BEAR.

THERE are two species of this animal, the land and the sea bear; the first never goes into water, and the other lives less upon land than in water and upon ice. These two species are entirely different, both in shape and in dispositions.

The land bear, of which you see two represented (Plate VIII. fig. 27.) is a heavy animal that has no other voice but a kind of growl; there is the black and the brown, which, according to good authors, differ in character as well as in colour. In general, this animal has the feet large and almost shaped like hands, the tail short, the hair long, thick, coarse, and almost curled, which makes him appear like a shapeless mass, by concealing the *contour* of his shape, which at any rate is not elegant. He clambers well upon trees, but without agility ; eats fruits and grain, and is particularly fond of honey and milk, but likewise preys upon small animals, and, when enraged, likewise falls upon men, whom he tears, stifles, kills. The duration of his life is from twenty to five and twenty years, and the female brings forth yearly four or five young cubs.

Bears inhabit Europe, Asia, and America. There were some formerly in Palestine, since the prophet Elisha brought two to devour two and forty young men that had called him bald-head, because he wanted hair.

There were likewise some in Africa, whence the Romans got them for their shows. Formerly too the Germans spent whole days sleeping and loitering, reclined upon bear skins, like the Turks upon their couches or sofas, whence they still get the ancient proverbial nickname of *Bærenbæuter*, signifying a sluggard or lazy person.

During winter, the bear sleeps six, ten, fourteen weeks, for want of food ; the continuance of this depends on the length and on the severity of the winter. It does not, however, fall into a torpid state like the marmot. It sometimes lodges in large trunks of hollow trees, forty or fifty feet high, and sometimes also on the ground under roots, and among thickets, where it constructs a kind of cabin for itself of branches, well covered with moss and herbage to defend it from rain, and well lined within, with leaves and moss also, that it may lie softly.

The bear climbs fruit trees to gather the fruit, which he does by getting astride on a branch, keeping himself firm with one paw whilst he gathers the fruit and carries it to his mouth with the other, or else he draws a branch with fruit to him, and gathers it with his mouth. In coming down, he embraces the trunk of the tree, and allows himself to slide down backwards, or else he rolls himself together and throws himself down. When taken young he may be tamed to a considerable degree, and taught different things, as dancing, beating the drum, &c.

The Poles, one of whom you see represented in fig. 28. of Plate VIII. have an easy method of taking bears, by mixing spirit of wine with some honey, which they place for them: a few minutes after taking this, the animal is quite intoxicated, and may be taken without danger. There are bears that are nearly the size of an ox, and some are quite white. Their flesh is good and eaten in most countries, particularly the legs and paws that are very delicate. The skins of black bears are used for making coverings to horses, grenadier caps, and for furring pieces of clothes.

THE WHITE BEAR.

THE white, or aquatick bear, or bear of the frozen sea (Plate XI. fig. 22), is much larger than the land bear, and often of the size of a bull (and even two or three times as large). His hair is long and white, and he has much resemblance to a shepherd's-dog. He is found near Spitzbergen and Greenland, and also in the frozen sea, adjacent to these countries. He preys upon birds and fishes and also eats the carcasses of whales and of sea dogs. This animal is more cunning and active than the land bear, leaps readily into the sea, dives, and swims easily, and defends himself in it against men, whom he sometimes wounds dangerously.

White bears assist one another warmly; as soon as one of them is in danger, another flies to his aid, the father to aid his young, the young to aid their father: and rather than fly, both will suffer themselves to be killed on the spot. Those who go to the whale-fishing make themselves furs of the skins of white bears, and the Greenlanders eat their flesh *.

FOURTH CLASS OF VIVIPAROUS.

THIS class formed by the viviparous animals thathave the hoof entire, or by the solipedes, is limited to the horse, the ass, and the zebra.

THE HORSE.

COME, my young friends, quick! quick! let me see if you be good horsemen; a little ride! have you courage?

---

* This is the place for quoting a remark of *Buffon*, who complains that authors have confounded, on the one hand, the brown land bears, which are very ravenous, with the black, which are frugiverous, and, on the other, the white bear of the frozen sea, that is not amphibious, though it lives mostly in water, with the sea bear, that is black, the female grey, partly amphibious, of a shape nearly resembling the land bear, living in society by thousands, distinguished into families, and which among other singularities in its manners, exhibits the social, intrepid, constant character, that is attributed to the white bear; whilst the societies formed by these last do not exceed three at most, the female, and two young.

P. Ah! dear Sir, I should be too much afraid of the horse throwing me. . . . . . . Oh! for me I should not. I have been on horseback already, and he did not throw me down. . . . . . . And I too. . . . .

M. Notwithstanding, I see clearly that you have not learned to ride; ye could not manage your horses, if they were lively and mettlesome. Well, let us get into a carriage: you have only to choose the equipage that ye like best. Shall we take four whites, or blacks, or greys, or sorrels, or bays, &c.

P. Are all these names of horses?

M. These are the names by which we express their colour instead of saying brown, red, grey, or spotted in different ways.

P. But must we go to the academy to learn to ride?

M. Certainly! the horse is a lively, active, powerful animal: can only be governed and managed by address? How keep him calm under you, make him advance, turn, re-turn, stop at pleasure, with ease and facility, without knowing the means discovered for that purpose? That is just what is taught at the menage or riding-academy.

P. But, have all those that ride on horseback been at the menage? for instance, peasants, butchers, millers that carry sacks to the mill.

M. No: but then the horses which they use are not very mettlesome, they are good creatures that have already lost the vigour of youth, or else have their mouth spoiled, that is, which, in consequence of being pulled by the bits, have their bars callous, so that they are not very sensible of irregular movements. Besides, peasants that rear horses, and sometimes break them, have likewise among themselves a kind of art, a certain skill in that, the result of exercise and custom, and which is communicated from one to another. To be able, however, to manage at pleasure, with ease and grace, a powerful horse, and whose mouth retains all its delicacy, it is necessary to make a particular study of it, as is done in academies destined for this purpose, whither young people are sent from a great distance sometimes, because they are scarce.

P. Are there not, dear Sir, some horses that are vicious?

M. Undoubtedly; but we must not imagine that they are naturally more vicious than others; the whole arises from a bad education. It is the same with horses as with men: they have only those vices which they are suffered to contract from want of attention, or from our not knowing the method to manage them properly. But there is a wide difference in this respect, that men who have got a bad education, do not fail to acquire sense in time, and this sense leads them to perceive of themselves, those vices which they have been suffered to contract, and to correct them of their own accord: whilst horses, which are but beasts, or irrational animals, preserve all their life the vices which they have contracted in their youth. This is the reason why we see horses of all ages that run backwards and forwards, that bite, rear; that will neither suffer themselves to be shod, bridled, nor saddled; that take fright at every thing; that grow restive, and cannot be made to advance; or, that take the bits in their teeth, and run off with the carriage, at the risk of breaking it all to pieces. It is certainly an art that does no little honour to man, that of managing at pleasure so fiery an animal.

P.

P. But, what is the method that is taken?

M. As the horse is neither ferocious nor carnivorous, there is only his mettle and his spirit to be gotten the better of and managed. For this purpose, the bit has been invented: you know that this is a piece of iron, of a particular construction, that is put into a horse's mouth, and with which he is governed, by means of a halter that surrounds his head. . . . .

P. And this piece of iron serves to command a horse?

M. Yes: but I must tell you the reason. This piece of iron, of which the two extremities come out of the horse's mouth, rests on each side upon the horsses gums in a part where there are no teeth. Now, as this part is extremely sensible, the horse, when he feels himself pinched there, dare not move for fear of hurting himself; and as soon as the bit is pressed in the smallest degree upon the bars, by pulling the bridle connected to it, the horse, who feels himself restrained and overcome, is obliged to obey, and to stop in the midst of his mettle. Then, to excite him, when we want to push him forward, spurs have been invented, a very simple contrivance, which resemble, in their effect, the goad used for oxen.

The chief art consists in not abusing the bit or the spurs, without which the horse loses his sensibility, becomes what is called dull, and is extremely difficult to manage. We wish to use them as seldom as possible, though we keep them constantly ready, and we accustom the horse to feel the smallest movement of the right thigh or the left, the least motion of a little switch. It is really an agreeable sight, even striking, to see a good horseman manage a horse by means of these trifles, with more ease and facility a thousand times, than the most expert mechanick regulates a machine which he has invented himself.

On examining the horse, we perceive him to be a beautiful animal, well proportioned in all his parts, with a look that is bold without ferocity, noble and elegant, adorned with a fine mane, and with a tail with long hairs, which give him much more relievo. Plate V. fig. 36. He has the foot garnished with a hoof of horn, all of one piece, which we farther strengthen with a piece of iron, beat into the form of a semicircle, or nearly so; by which means it does not wear so readily in going upon stones and pebbles. He is fed with hay and grass, straw also, oats, bread; sometimes we make him swallow a little wine or ale, to animate and strengthen him, in case of need.

P. Bread and wine! that is very convenient; in this way a man might mess with his horse, and feast him upon good fat soup, or with a luncheon of bread and butter.

M. As to messing together there would be nothing very surprising in that; the Arabs make them lie with them in their tents, and reason with them; so that one sees both men and horses in the same apartment. But as to fat soup, or bread and butter, we must not think of that. If we put butter on the bread which we give a horse he does not eat it, or, if we put fat into his water, he does not drink it; if his teeth be greased in any way whatever, he eats no more, and would die of hunger, if they were not cleaned to him. He cannot bear fat of any kind, so little is he carnivorous. The horse seldom sleeps above three or four hours a-day, or rather in the night, and commonly standing; he seldom lies, when in health.

The mare produces one foal each year. Horses, in general, live from five and twenty to thirty years.

Horses are extremely multiplied in almost every quarter of the world, but particularly in Europe. France, Spain, Germany, England, produce vast numbers of them. The best, however, are found in Arabia and in Barbary.

An Arabian horse, of *Marock* particularly, costs a thousand crowns and upwards. Nothing can equal the strict attention which the Arabs pay to the preservation of the purity of their breeds of horses. They have introduced distinctions among them, that are only found in other countries among men; they have their breed of nobles, of plebeians, and one that is formed by an intermixture of the two. A mare of the first breed is covered only in presence of creditable witnesses, who afterwards give their depositions in writing, signed and sealed, containing the names of the mare and of the stallion, and their pedigree. Then, when this mare is about to bring forth, witnesses are again called, who, in their deposition, give an exact description of the foal, and carefully note the date of its birth. These depositions are kept to prove, upon occasion, the pedigree of the horse, and in case of sale, are delivered to the purchaser along with the animal.

English horses likewise possess beauty and vigour: they are particularly celebrated for their speed, so that a good English courser will run over, in a minute, a space of half an hour's walk. After the English horses, those of Spain and Italy are most esteemed; (however, according to others,

others *, Spanish horses come next after the Barbary horses, which hold the next rank after the Arabians ; even the horses of Andalusia are preferred to all others for the purposes of war, parade, menage.

All these are tame horses; as to wild ones, they are not so common: they are only found in some parts of Asia and of America; even those of America are only the descendants of tame horses that were transported thither formerly; for the species was totally unknown in the new world. Whilst tame horses have all different degrees of beauty, of size, of useful qualities, wild horses, on the contrary, are clumsy, small, and difficult to break. They are neither ferocious nor dangerous, however ; they go in large troops, and when they perceive a man, they all stop, their chief advances, and after looking at him for some minutes, he takes to flight, at the same time giving the rest the signal to follow. There are a great many in China, and in the island of St. Domingo; in America, they are seen wandering in troops of four or five hundred, that pass the summer and winter in the woods and fields.

P. And have they no stables at night ; and are they not fed ?

M. They can very well provide for their own subsistence, and all their other wants, without the help of man ; for if we take the trouble to feed and dress horses, it is not because these animals have need of us, but because we stand in need of them. These wild horses are taken in snares that are laid for them ; and after being tamed, they never grow wild again, though they should fall in with their former companions. The horse has several motions, which are, the walk,

---

* Bomare, &c.

walk, the trot, and the gallop; besides the irregular motions of the amble, and the broken ambles; one being a motion between walking and ambling, and the other between trotting and galloping. The easiest motions are the walk, the amble, and the slow gallop; the trot and the rest are more fatiguing to both horse and rider. The voice of the horse is called neighing. The males are called stallions when entire, and geldings when castrated; as in the other species, we call these wedders, capons, oxen, eunuchs, instead of sheep, cocks, bulls, men. They are castrated to prevent them covering mares, and getting them with foal, because this would debilitate them, and at any rate they are more unmanageable in that situation. Thus, geldings are fatter, and more docile than stallions, or entire horses. The female of the horse is called mare.

And do you think the flesh of the horse may be eaten? we are not accustomed to that, it is true; but it has not, however, a bad taste, though it be reckoned tough; there are people, as the Kalmuks, that scarcely eat any other, that drink the milk of the mare, make butter from it, cheese, and a spiritous liquor. As they have troops of horses, instead of oxen, that does very well with them: we, on the other hand, who can get a fat ox for less than a horse, do right to eat the ox, and keep the horse for our carriages, or for riding; so much the more so too, as the flesh of the ox is really preferable to that of the horse.

The hair of horses is used for a great many purposes; for instance, the long hair is used to make bracelets and necklaces, sieves, rings, buttons, nets, and for the bows of musical instruments. The short hair is used for stuffing saddles, matresses, elbow-chairs ; the hatter even puts it into his felt, and the peruke-maker into his perukes. The skin of the horse is also much used by saddlers and harness-makers ; it is likewise used for making shagreen, and the hoof, for making combs.

THE ASS.

THIS animal wants the gracefulness, the beauty, the size, the forehand, the vivacity of the horse ; smaller and duller, his head is thick and clumsy, his ears long, his hair red or grey, and sometimes black, and a black stripe runs along the whole length of the back ; the tail is short, and almost denuded of hairs, except at the extremity ; the skin thick and almost insensible ; then his grating voice, called braying. He requires a sound beating to make him advance, or even to make him feel it, and to perceive that it is to him we are addressing ourselves. Plate V. fig. 81.

But it were unjust to load him with contempt for those faults, since they are compensated by precious qualities which render the ass one of the most useful animals that we have, not for parade and pomp, but for solid and essential services, as the carriage of burdens, drawing, and some even. for the saddle. In Italy, Spain, Turkey, where, indeed, the asses are larger and more beautiful than ours, they are very frequently ridden ; their motion is even softer and surer than that of horses ; they are seldom skittish, they are afraid of filth, and are very careful to shun puddles, and even water, on the road: in a word, when animated sufficiently, that is, when well whipped, they will go at a trot, or even at a gallop. But the quality by which the ass is most advantageously distinguished is his extreme frugality. In the midst of the severest and most constant labours, loaded with blows and with ill treatment, a handful of nettles, or of thistles, satisfies him, whether this be given him, or he be allowed to browse it himself; he does not give up the service on that account.

Notwithstanding, as to riding, at least among those who call themselves people of fashion, the ass is entirely excluded with us, whether this may be imputed to the slowness of his motions, in comparison with those of the horse, to his want of beauty, without being constantly absolutely ugly, or rather, once for all, to the empire of fashion, which has hitherto prevented. The ass, however, is very useful to millers, and particularly to poor people in the country, that could not find the food necessary for a horse; he is also almost indispensibly necessary in mountainous countries where the roads will not admit of carriages. In the narrowest paths, and the steepest, however heavily loaded, he never stumbles. Among hills, he carries grain, flour, fruits, water, and all the necessaries that the inhabitants have occasion for: a child of ten years of age may conduct five or six of them loaded, across the most rugged paths, without the smallest accident, but alway with a cudgel in hand, an instrument necessary to reach the feelings of an animal, when they are encrusted with too thick and too hard a coat. The patient ass goes at its little step, submits to cudgelling, arrives, does its business coolly and without stop, and at the end is feasted with food that is disdained by the horse or the ox.

Asses are not so plenty as horses, and in cold countries there are none, because cold does not agree with them. They abound most in Italy, Spain, and Turkey; and in these countries they are most beautiful. There are wild asses in Asia, in Africa, and in America. The ass sleeps as little as the horse, that is, three hours in the twenty-four at most; the female brings forth a colt every year. These animals live from twenty to five and twenty years.

As the jack ass is frequently made to copulate with mares, or a stallion with she asses, an animal is produced from this, with some resemblance to both father and mother, and which is called a mule. See Plate V. fig. 30. This animal has almost the size and the forehand of the horse, from which it differs chiefly in the ears, especially in those produced from the mare and the ass: for they commonly resemble more the father than the mother. Thus they are used for all the purposes of horses, though they are not ridden now so much as formerly, which may probably be imputed to their being so extremely vicious. But they make excellent beasts of burden, and are not bad for the yoke.

The flesh of the ass is likewise eaten in some countries, but it is still inferior to that of the horse. Their are mules in Tartary, whose flesh the inhabitants are as fond of, as of that of the boar. But the milk of the ass has long been in great reputation, and this reputation still continues. Beside the utility derived from it in several diseases, on account of its lightness, it has the qualities of an excellent cosmetick imputed to it, and princesses have been known to keep whole troops of asses for the purpose of employing their milk. It is particularly recommended in cases of phthisis. Ass's skin is made into sieves, tambours, parchment, and into sagri, an invention of the eastern nations, who pronounce this word chagri, whence we have got the word shagreen: It is, by sprinkling it with mustard-seed, which is very acrid and very astringent, that those small grains are produced, which are so hard that shagreen might serve for a rasp upon occasion.

THE ZEBRA.

On observing the elegance and the fine proportions of its size from head to foot, as well as the fine colour of its covering, of a brown black, with stripes of a white or straw colour, we may consider it as the most beautiful of quadrupedes. It approaches the size of the mule; its head is large, the ears long, the tail short; it is extremely wild, untameable even, and runs inconceivably fast. Plate IV. fig. 3. It inhabits only the warmest climates of Africa, into which men have scarcely penetrated: thus it is seldom seen in Europe alive.

FIFTH CLASS OF VIVIPAROUS.

The cloven hoofed quadrupedes, the bull, the sheep, the goat, the stag, the hog, &c. form the fifth class which we are now to speak of.

THE BULL.

We shall begin with him.

P. But, dear Sir, why do you not say ox? are they not the same?

M. The ox is only a castrated bull; if there were only oxen, the cows would never produce calves, and then there would be no more oxen neither. Thus the bull gives his name to the species, since it is he that multiplies it.

This animal, one of the most useful of domestick animals, not to say the most useful of all, together with the sheep (Plate V. fig. 39, 34, and 35), is extremely multiplied in all quarters of the world, though not equally every where; that depends on the degree of culture and of population, and particularly on the degree of heat; for horned cattle are afraid of too warm climates, and prefer a moderate temperature, like that of Europe. Thus it is in Europe that they are reared in greatest numbers; the number of cattle of this kind found there is almost infinite. Poland alone exports every year from fifty to sixty thousand fat oxen, and Hungary above a hundred thousand; how many thousands are sold by the Danes; and by the inhabitants of the duchies of Sleswick and of Holstein, or other provinces of Germany? Does not the single article of the commerce of these cattle constitute the chief resource of Switzerland?

Horned cattle have most commonly the hair red or brown; for there are few altogether black or even spotted with white, black, or brown.

They have the head armed with two smooth round horns, hollow within, bent like a sickle, and generally forwards; the tail short and terminated by a tuft of hair, like the ass, which serves to drive away the flies. They live upon hay and straw, grass, and all kinds of fresh vegetables. They are of infinite service to us, both during their life and after their death. They are not proper, it is true, for the purposes of war; but in return they seem designed by nature for carriage and labour. Their dung makes an excellent manure; the cow supplies us with veal and with milk, from which we obtain butter and cheese, and is sometimes yoked in the plough, as a number of poor labourers are obliged to do, who, with a couple of cows and a few goats, have a family to maintain and feed.

In ancient ages, cattle, both large and small, constituted the chief wealth of mankind. Abraham and Jacob, who were individuals extremely rich, and considered as princes of their country, possessed no other kind of riches than their flocks. At present, if they are no longer the only riches of individuals, and if these may be rich without possessing a single ox, at least it must be allowed that they still constitute the principal riches of states and of provinces, so that those where they abound, are with reason considered to possess the truest riches. Numerous flocks preserve the money in a country, and bring money into it from other countries: there are always thousands of the inhabitants that live solely on milk, butter, and cheese, and that draw their whole subsistence from their flocks. There is but little fear of famine in those countries, except in the case of a murrain, or one of those dreadful diseases that is sometimes epidemick among cattle, and cuts them off by thousands;

whilst, on the contrary, countries which have no other resource but their vineyards, or their mines, or any other similar article, are always more liable to indigence and want.

Only such bulls are preserved entire as are necessary for multiplying the species: all the rest are castrated, with a view to render them more docile and fitter for the purposes of labour, as well as for fattening. After an ox has been used in the plough or the cart for eight or ten years, he is then fattened to be killed and eaten. But there are many, and even the greater number of oxen, that are never employed in any labour, and that are sent to fatten as soon as they have acquired their full growth.

As to the cow, that is but seldom subjected to these severe labours, we obtain in return from her, milk for fifteen or twenty years, after which she is fattened, and eaten like the ox. But her flesh is not near so succulent, so tender, or so well tasted. The flesh of the ox is eaten not only fresh, roasted, or boiled, in general, but is likewise powdered, salted, smoked in great quantities. Even the entrails are eaten, and in some places likewise the blood. The fat, which hardens, or the tallow, serves to make soap or candles. The English take the epidermis or cuticle of one of the large bowels, to make those patterns, on which the gold-beaters prepare the thin leaves of this metal, or of silver, and of copper, that serve for gilding. Shoemakers, harness-makers, saddlers, employ the skin of the ox, the cow, the calf: buckets for carrying water are likewise made of it, and particularly those used in case of fire, because they may be thrown down from a height upon the pavement, without receiving any hurt. Snuff-boxes are likewise made of it in England. The Russians have a particular way of preparing it, by giving it an agreeable smell, and this is what is called Russian leather. This leather, in the country where it is made, gets the name of *iouste*, or of *iougte*.

The hide of the cow is thinner and weaker than that of the ox, and is but little used for soles: but the other parts of the animal, for instance, the intestines and tallow are used for the same purposes as those of the ox. The hide of the calf, on account of its thinness and limberness, is only used for upper leathers by the shoemakers, and for other purposes by those that work in leather, as also to make parchment and tambours, knapsacks, by leaving on the hair, &c. The hair of the cow and of the ox is likewise used for stuffing chairs, saddles, &c.; their horns for making combs, buttons, snuff-boxes, inkhorns, lanthorns, and a number of other utensils. It seems beyond doubt that our ancestors made of these horns, such as nature presented them, their first drinking vessels, and their first wind instruments, whence we have invented by degrees the trumpet and the hunting-horn. In several places, the hoofs of the ox are used as a manure for the vine.

The cry of this animal is named lowing, from the verb low: but that of the calf approaches nearer the bleating of a sheep: that of the bull is stronger and deeper, in the same way as the bull himself is a fierce and unmanageable animal, that never submits his neck to the yoke, and only serves for covering the cows and begetting calves. This species of cattle is not every where of the same size, the warmer the climate the smaller is this animal. Hungary, Poland, and England, produce cattle of the largest size; they are large too in Switzerland, Denmark, Holstein, Friesland. In several countries wild bulls are found, whose figure differs considerably from that of ours, and which likewise get names quite different: as the *aurochs*, *buffaloes*, and the *bisons*.

The *auroch*, or *ouroch*, is a species of animal that naturalists have agreed to consider as the true wild original bull, and to express which, this compound German name has been adopted, which signifies merely the wild bull, or bull of the wood. He is found in Austria, in Russia, in Hungary, and in Poland.

The bison, or bull with a hump, is an animal of North America, that is considered as the largest and the wildest of all the species of bulls. Upon the neck, and on the breast, he has long hairs of a deep brown, and upon the back a hump likewise covered with hairs: his horns are not so large as they ought to be in proportion to those of our oxen. Plate IX. fig. 6. He is very fierce in his dispositions, very untameable, and, when brought into Europe, is obliged to be chained, and even shut up in a strong cage or apartment, that he cannot break.

The buffalo is likewise considered as a species of bull. Originally a native of India, he has been naturalized and multiplied above these twelve centuries in Italy, Hungary, and some other places, where he is employed in labour. The method used to tame him is to pass a ring through his nostrils. Though he resembles the bull, his body is still, however, shorter and thicker; he is likewise much wilder, and has mostly the whole hair black. It has been observed that this species refused to copulate with that of the domestick bull; whence we must conclude, that there is a greater difference between them, than between the horse and the ass. The skin of the buffalo is very thick, and, from his name, is derived the word buff, which signifies that strong leather used in the accoutrements of soldiers, made from his skin, or other thick hides.

The ox eats fast while he has any thing before him, and till his first stomach be filled; after which, he lies down to ruminate, an operation which consists in going over again, or re-chewing the contents of this first stomach, till these be sufficiently attenuated to be fit to pass into the second, and thence into the others; for so long as he continues to browse, the digestive organs remain inactive.

You recollect that we already mentioned the four stomachs, or, if you choose, the four divisions or pouches of the prodigious stomach of ruminating animals, as the bull, the stag, the rain-deer, the goat, and others also. These four stomachs have each their particular name and use. The first is called the *paunch*, in which the grass or hay that the animal has eaten, is macerated for some time. Thence this mass is returned in balls to the mouth; where the animal chews it over again, and reduces it to a mash like beaten spinnage; after which it is sent down to the second stomach, called *bonnet* or *king's hood*. From this it passes into the third, called the *many plies*: where it continues for some time, and undergoes a second preparation or maceration, till such time as it be fit to pass into the fourth and last sack, called the *red*. In this, the operation of digestion is completed, accompanied with the secretion of the chile, in its passage along the intestinal canal, and with its distribution through all the vessels of the body.

Now, shall we go visit the dairy, and see the cheese and butter?

P. Ah, yes! dear Sir; we shall see how these things are made, though we have already seen them churning. . . . . . . And then we shall taste if they be good; shall we not?

M. Ah, the little epicures! come, come, however: since we are upon that subject, I shall tell you in a few words the method that is taken; after which we can talk more accurately with the dairymaids.

This is the method then of making butter. The milk when newly drawn is poured into large shallow vessels, distributed in the dairy, or in a cool clean place, where they are left for a day or two without stirring. After this, the thick fat part of the milk, called the cream, which forms on the top, is taken off, and thrown into a wooden dish, made on purpose, and called a churn, which is long and strait, particularly above, where it is agitated and churned with a churn-staff, or piece of wood, till the serous or thin part be separated from the oily or thick part, which remains in a mass by itself, and forms the butter; the thin part is called butter-milk; it is very wholesome when fresh, and well tasted.

The butter is afterwards put among water where it is agitated and stirred till such time as the water comes off clear, and nothing more comes from the butter, then the butter is fit for eating, either spread on bread or prepared and melted; for it is likewise set on the fire to be skimmed, to be made into a mass of grease called melted butter, and which is preserved for a long while in pots. This is more commonly used in kitchens than fresh butter, or even salted, as is practised in Britain and in other countries; for instance, in Lower Saxony, by taking an ounce of salt to every pound of butter. When the butter is not yellow enough, it may be coloured with marygold flowers, which are wholesome, and give it no smell.

Let us now see the cheese. You have often eat of it, without knowing the trouble of making it; have not ye?

P. But is it so difficult then!

M. It is at least a laborious operation. The milk, after being skimmed as we have seen, is taken and set on the fire to curdle, and afterwards put into a bag to drain, by pressing out all the whey, so that nothing remains but the caseous part, which is broken down, dried, and left in a mass till it spoil or ferment. Salt and cummin are then added to it, and it is formed into a mass, that is divided into small round cheeses, such as those you see sold at seven or eight pence the dozen: or it is made, at pleasure into larger ones. Other plants of an agreeable flavour are also sometimes added, and then it is called herb-cheese.

P. But how are the large cheeses made that are almost as large as millstones, which we see brought in great cart loads?

M. You mean to say Swiss cheeses, to which may be added Dutch cheeses, and many others. They are made almost in the same way as the small cheeses of the peasants; only, instead of skimmed milk, nothing but good sweet milk is used, which, however, is made to curdle. For that purpose, as soon as the milk is drawn, it is poured into a kettle on the fire, and, when it begins to warm, there is thrown in a spoonful of runnet, which is a liquor prepared by steeping the fourth stomach of calves in water: for this end, a whole stomach, or more, according to the quantity of runnet that we want, is taken and cut into pieces, which are put into water, with a handful of salt, for fifteen days. A single spoonful of this liquor is sufficient to curdle two hundred pints of milk.

When the milk is curdled, and the caseous part sufficiently thickened, the whey is taken off with large skimmers, or it is left to drain, to bring it to a proper consistence. After the curds are sufficiently dry, they are put into a clean linen bag, and set on a plank in a circular dish, or frame of wood, and the whole is put to press under stones, to take out the remainder of the whey. This is the cheese; and to give it a taste, as well as to make it keep, a solution of salt is sprinkled on it. When the cheese is new, it wants the biting taste which some are afraid of, and which the greater number are fond of; and it only acquires this by age. It is not all equally rich; the difference proceeds from this, that frequently it is not made with new milk, but with milk that has been creamed once or twice; then it cannot be very rich.

Goat cheese and ewe cheese are made in the same manner as that of the cow.

We make cheeses of every shape that we choose; some are round like a ball, others round and flat, some round and long, others squared, &c. Sometimes there is mixed with the milk the juice of different salutory and well flavoured herbs.

Beside all these which we have mentioned, we derive many other advantages from these animals. The pairings of the skin, the hoofs, the sinews, the cartilages, dissolved in water upon the fire, serve to make an excellent glue that is used by painters, joiners, &c. A stuff has been formed of the fibres or threads of their tendons, of a remarkable force and elasticity. From the whey is obtained, by crystallization, a species of salt, called sugar of milk, and which is of some use. Ox gall is employed in medicine, at the toilets of ladies, by diers, scourers, painters. The bones of these animals serve for making a number of utensils, which are almost equally pretty and solid with those made of ivory.

THE SHEEP.

SHEEP are quadrupedes covered with wool: the entire male is distinguished by the name of ram; the castrated male by that of wedder, the female is called ewe, and her young, lamb. Sheep are of the utmost utility to us, and on this account are extremely multiplied in every quarter of the globe. Their gentleness is so great as to have become proverbial: they feed upon grass and vegetables, and live from twelve to fifteen years. The ewe produces every year one lamb, sometimes, but not so frequently, two, at a birth: she seldom has two births in the year, except in warm climates.

Sheep are nowhere found wild, that is, they nowhere live in woods or fields, like hares or rabbits, without the assistance of man: for these animals are too timid, too stupid, too weak, and have too little industry and address*. The smallest noise, the lifting up of a child's hand, the falling of a small stone among them, is quite sufficient to alarm a flock of sheep: they run upon one another, flee in the utmost precipitation, without knowing whither: in a word, they are exposed to every danger, without the power of avoiding even the smallest. If the wolf comes when the shepherd and his dog are at a distance, he does not meet with the least resistance; he may choose, kill, carry off, at pleasure, scarcely one thinks even of fleeing.

---

* We must either say that there are no wild sheep such as ours, or weak and defenceless: or else, we must shew that Buffon and other naturalists were mistaken in considering the *mouflon* as a species of wild sheep. We shall make an observation or two on this at the end of the article.

P. How! do they not defend themselves?

M. A sheep defend itself! that would indeed be a miracle; in reality it struggles a little, and stamps with its feet, but these are the only signs that it makes of anger or resentment.

P. It can at least make its escape.

M. Sheep run up and down, but all one and the same way, without going to any distance. But they are not made for running, they lose breath after a few paces, and fall down of fatigue.

Thus they require to be conducted, guarded, fed with the utmost care; sheltered from heat and cold, from snow and rain: for, though they cannot support the inclemencies of the weather, and contract diseases in consequence, which carry them off by thousands, still, however, they continue on the same spot, exposed to rain, snow, hail, with their eyes fixed on the ground, without so much instinct as to seek for a shelter. They must be removed from this situation by man, or they would infallibly perish one way or other*.

It might be thought that this stupidity would render them indocile and stubborn, like the ass and the mule; nothing, however, can be more gentle, more docile, or obedient than these animals: we can take them wherever we choose. The shepherd goes before, behind, at the side, the whole obey his voice, march in close ranks, without stopping, without scattering among the fields, vineyards, or woods; if one or two stray from a numerous flock, it is rather from stupidity than inclination to wander. We have dogs, however, perfectly trained to this business, and that know to collect them, watch them, guard and defend them, conduct them to the pasture, bring them back to the fold; in a word, to take care of them night and day.

---

* It is well known that sheep in this country are exposed to all the inclemencies of the season, both summer and winter, without suffering any of the inconveniences mentioned in the text.

It may be said then that sheep, in their present state are the only species of animals, that could not subsist without the assistance of man*, and that indispensibly require his care, to feed, to water, to give them salt, to bring them back to the fold, to shelter them from extreme heat or cold. In all these marches too, care must be taken not to fatigue sheep, for they are easily wearied. This would be still more the case in Arabia, Persia, in Syria, in Africa; where the sheep have tails that weigh from twenty to thirty pounds, whilst the animal is not larger than our own.

P. Tails that weigh thirty pounds?

M. So many: thus they can scarcely carry them, or rather drag them; this tail is only a a mass of fat thicker below than above, which must be supported on a small machine with two wheels, which is fixed to the sheep: and in this manner they are seen feeding in flocks with their tails supported in carriages.

---

* This assertion with respect to the delicacy of the sheep, we must observe, is very ill founded. Instead of standing most in need of the assistance of man, the sheep in its present condition, in this country at least, requires, perhaps the least of all domestick animals, his care and attention Were it even otherwise, however, and did we find the animal as weak and defenceless as is alleged, as this might in a great measure be imputed to domestication, it were wrong to infer from thence what it would have been in its natural state.

P. That must be very droll!

M. Droll enough indeed, at least to us: it is a misfortune that the Africans and the Arabs have but too few of this species of sheep, as well as of those with a slender tail, because the extreme heat of the climate, and the great number of wild beasts, render it difficult and dangerous to guard them. I do not imagine that all Africa contains so many sheep as England alone, or Spain, where there are reckoned ten or twelve millions. Besides, there are sheep in Tartary, whose tail weighs still more, since some of them weigh eighty and even ninety pounds.

As to the wool, the Spanish sheep furnish the best and the finest in the world: though it has a reddish cast, it is made extremely white by working, and from it are manufactured the finest cloths, hats, and stuffs.

With us it costs as high as two crowns a pound. The English wool is rather inferior to it in fineness: but it possesses the advantage of being longer, of having a better gloss, of taking the colour better, and of not diminishing so much in the fulling. The English sheep are also larger than the Spanish, which remain out in the open air night and day, winter and summer, and are almost always going from one province to another. The same thing is done in England, at least with respect to the keeping them constantly out in the air, and also in other countries where the winter is mild.

In Africa, the sheep have, instead of wool, hair that is fine and soft, and that is shorn every year, and fabricated into different stuffs. The ancients did not shear the wool of their sheep, but pulled it off in handfuls, which must have put the creatures to considerable pain. It is true, they possess great patience, and that frequently when wounded by awkward shearers, who cut off the skin along with the wool, they suffer it without testifying the smallest impatience, without even so much as expressing the smallest complaint by a bleat.

In our climates we commonly shear our sheep about the month of May, sooner or later, according as the season is more or less cold; and always after being well washed, to clean the fleece. They feel a little cold at first, from the want of their robe: but the season being mild at this period, they are soon accustomed to it: sometimes too it grows so warm in the month of June, that they would have been burthened with this if they had had it, so that we do them an actual service in taking it off; besides, it would soon fall off piecemeal, as we sometimes see even at the time that they are shorn.

You have observed that, in our flocks of sheep, only the rams have horns, and never above two; but in warmer climates, as in Asia and Africa, almost all the sheep have horns, ewes and wedders, as well as rams. What is most remarkable, is, that they are not always limited to a single pair, but sometimes have three, four, and even the length of eight horns.

P. Ah! now for a hit: in these countries the sheep may well defend themselves against wolves; may they not, dear Sir?

M. Yes, defend themselves! that is not to be done merely by their having horns, they must have courage, dexterity, resentment; the poor animals are as peaceable there as with us, and derive no advantage from having more horns than ours, and even than other animals. Besides, without going so far, there are species of sheep in this country, of which the females have horns as well as the males.

But if we be obliged to bestow so much care on sheep, our pains are not lost, and we derive infinite advantage from them. Their flesh affords us an excellent food, and their milk is very rich: cheese and butter are made from it, and we may milk ewes every day as we do goats, if we choose. However, if they are not milked, their fleece is better; they bring forth oftener, and their lambs, in consequence of sucking longer, grow more beautiful. By folding sheep on a piece of land, we obtain an excellent manure, that continues for some years; and it is for this reason that you have so often seen flocks shut up within a clay fence, in open fields, where they continue on the same place the whole night, sometimes even during the day; and they are taken in this manner from one place to another, till the whole field be manured. This is folding: then the shepherd with his dog lies beside them in a hut, or in a covered machine, supported on two wheels, as you must also have observed sometimes in the fields

Then the wool of sheep, how many hands does it employ? how many thousands does it give bread to, in manufacturing our cloths, our stuffs, our stockings, our hats, &c.? Of all these fabrications, some are fine and dear, others coarser, and lower priced, each according to the fineness or coarseness of the wool: the finest furnishes the best and firmest, which is particularly remarkable in hats; for they are mostly made of wool, and very little hare-down is put into them. As to that kind of hats called beavers, they are just made of fine wool, and we must not imagine that any beaver-down is put into them; otherwise they would be much dearer than they are, considering the scarcity and price of this down.

P. But, dear Sir, are not white hats made of white wool, and black hats of black wool? they are not died?

M. It is true that all those that are not white or grey, are dyed, and even those that are made of black wool are still dyed black. As white wool, however, receives any colour that we choose, this gives it a greater value. The sheep is not one of those animals which we can kill without regret, as being of no use to us while alive; if, however, it affords us many advantages while alive, we derive still more from it after its death. We eat its flesh and entrails, and in certain countries puddings are made of its blood, in the same way as that of the calf. Its bowels serves us for making strings to musical instruments, such as violins, harps, and for many other purposes. The bowels are turned, washed and then twisted together.

Two are always necessary for the smallest string of a musical instrument, three for the finest of the violin, seven for the strongest of that instrument; then a greater number in proportion to the thickness of the chords, even as far as a hundred and twenty for the thickest of a counter bass. For this manufactory, the bowels of goats, cats, and calves, are likewise used; but the best strings are made of those of the cat and the lamb. They are made well in several parts of the kingdom, but those made at Rome are still better; and the best come from Naples.

The skin of the sheep answers for making breeches, sacks of different kinds, and cordouvan and parchment are likewise made of it; then the suet answers well for making candles. You know that the suet is that fat which hardens, different of course from that which continues always soft; only ruminating animals, or at least frugivorous, afford suet; others have only a soft and oily fat.

The *mouflon* resembles so much the domestick sheep, that it is considered as the wild-sheep; and what confirms this opinion, is, that it produces lambs by copulating with the domestick species. It is true, that it is covered with hair; but there are many species of domestick sheep, particularly in warm countries, that likewise have hair instead of wool. Its horns are very strong, and serve it for arms, with which it can well defend itself, so much the better too as the animal is lively, strong, and light. It inhabits Russia, the southern parts of Siberia, Greece, Sardinia, Corsica, though according to another naturalist, that of this last island has more relation to the chamois-goat than the sheep, except in the horns.

THE GOAT.

THE goat is an active lively animal, and does not resemble the sheep in this respect, any more than in docility; it is also stronger and more hardy, supports cold and wet, and is not afraid of storms. It leaps like a mad thing, skips, runs up and down; and we see goats when together make a thousand gambols. The goat is often quarrelling in the court-yard, because he is rather peevish, and he sometimes even rebels against the goat-herd. It leaps nimbly upon fences to get into gardens, and to steal a few leaves of cabbage or of sallad; it eats too the young buds and leaves of shrubs; in a word, every thing that is verdant. It is rather a little stubborn; but it must also be confessed that it is frequently teazed, and that we delight in plaguing it, in pulling its beard, and sometimes give it half a day's journey for a handful of leaves.

The goat is fond of the society of man, seeks dry places, heights, mountains, clambers on the steepest precipices, eats also moss, and licks salt with pleasure when it gets it. It lives from ten to twelve years, and produces every year a birth of one or two kids, sometimes three or four. As its flesh is well tasted, it is not suffered to grow old; that of the kid has the look and almost the taste of mutton, though it has a little smell that every body is not fond of: there are even countries, as Norway and Sweden, where it is used at almost every table; thus the flocks there, are numerous.

The goat likewise affords a suet of good use: its skin is made into cordouvan, parchment, gloves, breeches, &c. There is a way of preparing it by maceration in lime, so as to separate the fine upper pellicle, or epidermis; after which it is died blue, red, green, or suffered to remain white, and made into gloves. The skin of the goat is of the best quality and likewise gives a better price than that of the sheep. Its milk is excellent, preferable even for old people, and such as are delicate, to that of the cow or the sheep; and cheeses of an excellent flavour are likewise made from it. Those of Lyons among others are famous.

The hatters make use of the short hair of the goat, and the long serves the peruke-makers: it may even, if we choose, be spun and made into stuffs, as that of the goats of Angora*: though this last be finer, softer, of a foot long, and as white as snow. Thus, this is the only country that furnishes this, though the goats do not differ much in figure from ours: it is from this hair that camlets are made. But there are goats that want horns, and these are shorn every year like sheep; in other respects, they resemble the common goats, have the same dispositions and the same bleat. In Plate V. fig. 20. is represented a female goat of Angora, and fig. 21. the male. The name of camlet, which is given to stuffs made of goats hair, is derived from this: the Arabs from whom we learned the use of it, call goats in their own language by the name of *kaimel;* whence it follows that the true pronunciation of this word, corrupted from habit, is *caimelot:* Thus we must not derive it from the Latin name of camel, *camelus*, by alleging that the hair of it is likewise manufactured; of which the large camels with a bunch cast every year a great quantity. But you should likewise know that the real caimel or goat hair of the goats of the Arabians, never comes our length, and that our camlets and other stuffs that pass with us for fabrications of goats hair, are made of the simple wool of the sheep, save only that our manufacturers sometimes mix a little silk with it.

THE

---

* *Angora*, or *Angouri*, is a country of Asia Minor, and Angola a large country of Africa in the Congo, where there are no goats. We must not confound them like the vulgar.

THE WILD GOAT.

THIS animal is still more active and vigorous than the domestick goat, so that, when fully grown, it can no longer be tamed. It is larger and stronger than the former, and its figure, represented in Plate VII. fig. 3. has some resemblance to that of the stag. It has the hair reddish, two horns very long, and bent backwards; the nails sharp and hard. It inhabits the snowy and icy mountains of Switzerland, and of Savoy and Tyrol, in places of the most difficult and dangerous access; it feeds on plants and roots, and lives to the age of fifteen or twenty years. It dwells so much in cold mountainous situations, that it cannot run on level ground, and, in a warm climate, it loses its sight. It clambers among the sharpest rocks with astonishing agility, makes its way through the deepest snow, to seek for roots and plants at the bottom; it goes over gulphs like a bird, and, like the chamois and the deer, leaps from one rock to another, at the distance of twenty, thirty, and forty feet, especially when pursued, without breaking its legs, or doing itself the least injury; though it even sometimes misses its leap and tumbles headlong down a precipice. Its skull is remarkable hard; we may form some judgment of this from the terrible blows on the head that we sometimes see the common goats give one another, when fighting.

There are very few wild goats: in 1778, one was carried through different countries of Europe

rope as a great curiosity. There are more of them killed, however, than taken alive.

THE CHAMOIS GOAT.

Chamois Goats are more common than the wild goats; they are met with on the mountains in troops of ten, twenty, thirty, and even as many as sixty; but they are smaller, weaker, less artful, do not clamber, like them, on the very pinnacles, but are satisfied with the middle height of mountains, where the rocks border on wood and bushes, among which they find their subsistence during winter, and shelter. In other respects, these two species of wild animals have the same habits, and inhabit the same countries, namely, the mountains of Switzerland, of Savoy, and of Tyrol. Beside plants and roots, they likewise feed on leaves, buds, the young shoots of coppice-wood.

The chamois (Plate VII. fig. 2.) is an animal of an agreeable shape, gay, lively, active, which goes over an abyss at a bound, into which it had boldly precipitated itself to escape the pursuit of huntsmen and dogs. It has the hair grey, of a blackish brown, and short, two small horns on the forehead, the tips of which are bent backwards, and whose bases are planted almost between the two eyes. It lives as long as the wild goat, and the female produces one, seldom two at a birth.

A single one is seldom found by itself; they always go in troops, males and females together. When the troop stops in any place, one always continues sentinel, while the rest browse; he takes his station on some elevated summit, that he may discover at a distance huntsmen, vultures, or eagles; and as soon as he sees, or hears, or even smells any thing suspicious, he instantly gives notice of it to the rest, by a long sharp bleat, or rather by a kind of whistle. On this signal, they all instantly make off, and in an instant, they are seen leaping among rocks and precipices, at the risk of breaking their necks, as sometimes happens. The rapidity of their course disconcerts men and dogs, but vultures and eagles know well how to follow them in the air, and to pursue them till they find out their young, to carry off in their claws, or till the old ones, falling into some gulph, break their legs or their necks.

P. But in that way the hunters can never catch them?

M. In reality it is not easy, and not without running the greatest dangers. They set out in a light dress, with a small sack on their backs, in which they carry a small provision of dry meat, bread and cheese, with a pair of good cramp-irons to put on their feet, when they have any steep place to climb, or to clamber upon ice and hard snow. They ascend the mountain striking the rocks, beating the bushes, to spring the chamois from their holes, whilst one keeps watch. Commonly there are two or three at least; one beats about on one side, another on the other, and the other stands ready to fire, if any thing springs. They continue to advance in this manner, and frequently spend two or three days in climbing the most dangerous places, before they make a single capture, or even fire a single shot. Frequently one of the hunters falls, whilst attempting to climb some place, and breaks his legs or arms, so that they have only to think of getting him home half killed; or still worse, perhaps he falls into some gulph, whence it is impossible to get him out: sometimes, however by cutting their clothes and shirts into belts, which they tie end to end, the others succeed in extricating the unfortunate person that has fallen.

P. As to me, I renounce hunting the chamois: it is not a thing to amuse one's self with.

M. And yet nobility, princes, sovereigns, have been eager for this chace. But it is still worse when one is reduced to the necessity of precipitating one's self.

P. And how does that happen?

M. In running after the game, and in the ardour of pursuit, a person advances, climbs always, without reflecting how he is to descend again. How often has it happened that a person has found himself in a situation, where he could neither advance nor recede, so that he had no other alternative but that of perishing by hunger, or of leaping down from a dreadful height, from a small projecting rock, not larger than one's hand! The unfortunate wanderer then begins, by throwing away his musket, and every thing about him that is heavy, takes off his shoes, takes his knife, makes a deep incision in his heel, or in the sole of his foot, to bring blood, in the slender hope, that the viscosity of the blood will prevent him slipping, whilst placing his foot on the spot that he observes. But, alas! how many miss their leap, and perish miserably in the abyss. This is what happens every day.

P. But the chamois must certainly be a very valuable animal, since the people take such trouble to catch it?

M. It is valuable, no doubt, but not nearly so as to counterbalance such dangers. Thus it is not interest that leads sportsmen frequently to expose themselves thus, in the same way as in hunting the wild boar, since they are frequently people of rank that have this strange passion. It would seem that the great, weary of swaying too easy a sceptre over men that are debased and abject, are ambitious of the honour of subduing slaves that are less docile. Happy in this thirst for glory, that there are still beings in nature not subjected to their will. In general, man, by pursuing these dangerous chaces, whose profit compensates the risk, just as a soldier's pay of five *sous* compensates his life, finds a secret pleasure in returning in some measure to that pristine state of warfare in which it pleased nature to place him, by surrounding him with such a number of animals stronger and more ferocious than himself.

The chief value of the chamois depends on the use that is made of its skin, which is excellent, soft, and warm, and has the property, when prepared, of standing washing without hardening or spoiling; it is made into gloves, stockings, breeches. But notwithstanding all this, it might be wanted so much the better as we have long ago discovered the method of preparing the skins of sheep and goats in the same manner. This preparation has likewise got the name of chamois, or shamy.

The flesh of the chamois is likewise eaten, and different uses are made of the suet, horns, &c.

There is found in Syria, in Egypt, in Persia, a species of goat, or of chamois, that goes in troops, and are particularly distinguished on account of a kind of stones called bezoars, that are found in their stomach, that formerly were in great repute in medicine, and still are in some countries. These stones, or concretions, are the size of a ha-

zel

despair, and to conclude, of a refined barbarity, of tearing him in pieces with dogs, when he can do no more; this is a pleasure which the great, princes, and sovereigns, have reserved for themselves.

P. Ah, mercy! the poor stags! is it possible dear Sir?

M. So possible, my friend, that it is the only animal that those gentry delight in hunting; who, to reserve this honour exclusively to themselves, compel every other person to use their stags with the greatest respect: so that for any other person than the proprietor of a park, the action of simply killing a stag, in the same way as we would kill any kind of game, a hare or woodcock, is almost worse than killing a man.

P. But it is very remarkable!

M. If we were great lords, or gamekeepers, we would find it all very simple and natural.

The stag is a very large animal, since it almost equals the bull, with this difference that it stands higher on its legs, is more slender, not so long, and not so thick.

There are some stags white, but few: their common colour is a reddish brown, or a dull red; the males have their head adorned with two large horns, from which sprout smaller ones called antlers. The tail of the stag is very small; he eats grass, moss, tender bark, acorns, beech-mast, wild fruits; and lives thirty or five and thirty years. The female, which is named hind, (Plate VII. fig. 14.) has every year one birth, generally of a single fawn (fig. 19.) (this is the name of the young) seldom of two. Look, you will find a stag represented (fig. 13.), count his antlers.—You will find ten of them: well, then he is nine or ten years old; for their number increases every year, at least with a few exceptions. From the second year to the eight, the new horn shoots out every year, larger, stronger, and furnished with a greater number of antlers. Thus, this is what is called a stag with ten antlers; this is the age at which they are commonly hunted.

P. What! do the horns of the stag grow every year a-new?

M. Yes, a-new: those of the preceding year commonly fall off in March or April, and even to facilitate their casting, they rub them against trees, and strike them against one another. In the course of three or four months, there grows, in their stead, two other horns, longer and stronger. In our country horns have seldom above two and twenty antlers, but some have been seen, however, that had as many as sixty or sixty-four; in that case they could not mark the age of the stag. At first, the young horn is very slender and covered with a skin or rough bark: it is extremely sensible, and the stag is then much afraid of the least rub, so that he always goes with his head low. But when the horns have acquired their full growth, far from fearing a stroke, he rubs them himself against trees to bring off the skin now grown useless.

It is not till the second year that the fawn begins to get trunks or horns without antlers, which scarcely extend beyond his ears, and then he gets the name of pricket. He afterwards gets antlers, whose number increases every year, so that we can judge pretty well of his age from this mark. But hinds never have any horns. The fawns, during the whole of the first year, have the hair spotted red and white; by degrees their robe becomes completely red.

P. But, dear Sir, what use is made of stags?

M. Oh! It is a very useful animal for amusing those ladies and gentlemen who have nothing better to do than to spend their time in this chace which I have mentioned to you, and which, by way of distinction, is called noble. Some use, however, is likewise derived from the skin of the stag, which is made into breeches, gloves, belts, &c. His horns are placed in triumph in the hall, fixed to, or inlaid in, the wainscoat, with inscriptions to commemorate the glorious victory obtained by strength of dogs, horses, and huntsmen over those poor, timid, peaceful, animals.

The flesh of the stag is likewise eaten.

THE FALLOW-DEER.

THIS animal is smaller than the stag, and its horns of a quite different shape; they are flat, broad, and slender, with fingers curiously disposed. Plate VII. fig. 22. It is found in troops or flocks in the forests of Europe and of North America, but only in those places where there are few or no stags; because these two species cannot live together, though in general they have the same dispositions.

The roe (fig. 23.) produces every year one fawn, sometimes two, seldom three: and they live about twenty years. They are very numerous in England: they are common enough in France in parks, but their are few in Germany. The skin of the fallow-deer is much finer and better than that of the stag: so is likewise its suet; the hair of both is used for stuffing benches, chairs, cushions, &c.

THE ROE

(Plate VII. fig. 20.) This, like the former, is smaller than the stag, and of a dun grey, but resembles him in its dispositions and manner of living. It is found in Asia and in Europe; and lives eighteen or twenty years; the female every year brings forth one fawn or two. The roe, the rain-deer, and the elk, have all annual horns; they cast their horns later than the stag, namely in autumn, though they take nearly an equal interval to replace them. The flesh of the roe is eaten, its tallow is used, its hair is preferred to that of the stag, because it is not so apt to grow knotty, and even to that of the ox.

There is great reason to think that the roe and the stag are subject to be punctured by a species of gad-fly that torments the rain-deer so much: this insect must likewise deposit its eggs in the puncture that it has made in the skin; and, after some days, larva are produced, that torment these animals cruelly. They go and rub themselves against trees and stones, and kill a good number of them: crows and ravens extract a part from their skin. But it is probably to these larva, that the holes and cicatrices that we commonly observe in the skin of these animals may be imputed.

THE RAIN-DEER.

THIS animal, of the same genus with the preceding, is only found in the most northern parts of Europe, of Asia, and America, to wit in Lapland, Greenland, Canada, in a word, only where the cold is intense, and where the winter continues for about three fourths of the year. It cannot support a warmer climate, whether this be in consequence of the heat, or from the want of proper nourishment: it dies in a few days, if transported thither. In its native climate the rain-deer lives five and twenty years; it eats moss, the young buds of trees, leaves, and the female brings forth one young each year.

Some rain-deer are tame and others wild; but in Lapland, the first are most common, and in the other countries of the north, the reverse is the case. The rain-deer are fed in flocks in the woods during the day, and at night they are shut up in parks, to protect them from the wolves and gluttons; which, in spite of the size of these animals, can both take and devour them. The glutton, in particular, which cannot come up to the rain-deer in the chace, climbs up a tree, and conceals itself among the leaves at the extremity of a branch, where it remains till a rain-deer passes beneath. Then it seizes the opportunity, darts upon him, fixes itself on his back by its claws, bites his neck, sucks his blood, and continues in this situation, in spite of the leaps and the rapid flight of the rain-deer, till the poor animal falls down exhausted, and half-dead.

The rain-deer is the only cattle, and constitutes the sole riches of the Laplanders. Whoever possesses none of them is considered as a mendicant; but the poorest have always at least a couple or two; the greater number possess ten or twelve; and the wealthy have flocks of them of seven or eight hundred, a thousand, and even two or three thousand. To them, this animal supplies the place of the sheep, the ox, the horse, so much the more too, as they have neither fields nor gardens besides: thus, it is their sole and only resource; it furnishes them with food and clothing, and supplies all their wants. Its milk is extremely rich and nourishing; it is used as a beverage, or made into cheese; its flesh is the most common and at the same time the best food of the country. Its fat serves them instead of butter; its skin serves for clothes and bed-covers; the entrails and the tendons for making cords and a kind of thread; the bones for making spoons and needles; the hoofs, or the nails of the feet, serve for drinking vessels; and the bladder for a bottle to hold a spirituous liquor; in short, that nothing of this singular and useful animal may be lost, they likewise drink its blood.

During summer, the rain-deer is fattened, and in winter it is yoked to a sledge, as you see represented in fig. 37. of Plate IX. It goes with such amazing rapidity as to perform in one day a journey of forty or fifty leagues: for this animal seems rather to fly than to run, and drags a sledge the whole day without stopping, without food or rest: so that, with such limited desires as the Laplanders have, we see that these people may derive from their rain-deer enough to satisfy all the wants of that kind of life to which they have been accustomed.

THE ELK.

THIS animal may be considered as making a near approach to the rain-deer, though it be not a native of the same cold regions, and has propagated even in warm climates, as in China, Africa, South America: it is found particularly in Russia, and in other countries of the north.

The elk (Plate XII. fig. 37.) has much resemblance to the rain-deer, but is larger, and as high as a horse: it has the hair reddish, long and stiff, the horns small, as broad as two hands, with few antlers: it may be tamed, yoked to a sledge, and will run as fast and as long as the rain-deer. The same use is made too of the different parts of this animal, of its milk, flesh, skin, which is said to be thick enough to turn a ball, of its tallow, &c. Notwithstanding the thickness of its skin, its size and strength, particularly of its fore feet, with which it can kill a man at a blow, the wolf, the dog, the glutton, can catch and master it, in the same manner as they do the rain-deer.

It has been alleged that this animal was subject to the falling sickness or epilepsy, and that it has been seen to fall down suddenly: it may perhaps squat on the ground on perceiving men, at least the wild elk, but this is probably the effect of fear, for it is a very timid animal; nearly like the oppossum, which certainly rather falls down in a faint at the sight of an enemy, than counterfeits death from cunning and instinct. To this it has been added, that the elk cured itself of the epilepsy, by keeping its left foot in its ear, whence the most extraordinary virtues have been attributed to the hoof of this foot. It is true that the powder of this hoof is made use of in different compositions, like the horns of different animals; but the story of the epilepsy and of the anti-epilectick virtue of the hoof is absolutely fallen into discredit.

THE GIRAFFE.

THIS animal obtains with us the name of *camelopard*, which ought rather to be *camelopardalis*. It is very large, and of a remarkable shape; and, after the elephant, is the largest of quadrupedes. It is only found in Ethiopia, in the interior parts of Africa. It has the hair of a reddish white, with brown spots, two small straight horns, the neck long, the fore legs very long, those behind short, with a difference of two or three feet; for the first are about ten feet high, and the last only seven or eight*, so that its back appears steep, and as if the animal rested on its tail. You may see from the length of its legs that it is a large animal,

---

* In the description of this animal, our author seems chiefly to have followed Buffon. The proportions, however, given of the animal by that celebrated naturalist, being taken from different authors, and from the communications of different correspondents, are not very consistent, We shall therefore describe these here, as given by Mr. Pennant. The height, from the crown of the head to the soles of the fore feet, is seventeen feet, and that from the top of the rump to the bottom of the hind feet only nine: The length of the body is seven, and from the withers to the loins, only six feet. The fore legs are not longer than the hind legs; but the shoulders are of a vast length, which give the disproportionate height between the fore and hind parts. The horns are six inches long: the head is like that of a stag. The neck is slender and elegant, and on the upper side there is a short mane...... Pennant's Synopsis of Quadrupedes.

mal, and, in reality, the giraffe when standing is about eighteen feet high. Its gait is slow and unsteady, and when about to eat grass, or to drink, it is forced to kneel down; but it commonly feeds on the leaves of trees. It is a very gentle animal, extremely timid and fearful, and does injury to nothing. It has seldom been brought to Europe. The word giraffe is its Arabick name, and that of camelopardalis is derived from its resemblance to the camel in shape, and to the leopard in the spots of its skin.

THE CAMEL.

WE distinguish by this name a species of large bunched quadrupedes, of which there are two kinds, namely, the camel, properly so called, which has two bunches, see Plate X. fig. 18. and the dromedary, which has only one (fig. 19.) They are found in Asia and in Africa. They have the hair grey, sometimes brown and white; they eat nettles, thistles, and all kinds of prickly shrubs, and live from forty to fifty years: the female has only one birth in two years, of a single young one.

The dromedary is a native of Arabia, but has been naturalized from time immemorial in the north of Africa, and in almost the whole Levant, where it is become so common, that there is scarcely an individual that does not keep one at his house. Its principle use is to carry loads, and to make long journies with these on its back; however long they may be, this animal constantly advances with extraordinary celerity. It is likewise found wild in Asia.

The camel comes from the province of Bactria in Asia, at present called Turkestan: but it is most frequent at present in the north of Asia, as far as China, generally wild. It is not so common as the dromedary.

These animals are well made, though very large, since they are larger than the bull: they have the legs and the neck very long, the head small in proportion, and without horns, the tail short, and the foot not so much cloven as that of the ox. They are peaceable and docile, and may be made to do whatever we have a mind. People run among the middle of them, without being afraid of their kicking, get upon their back, or on their neck that is arched, as you see a Moor doing in the plate that is here given. When ordered, they bend their knees and lie down on their belly; in which posture, they continue on the ground till ordered to rise.

If they do not instantly obey, it is only necessary to show them a whip, or to pull them by the neck. They are used for the saddle, for loads, and for draughts; in Persia, and in Arabia, in Turkey, Egypt, Barbary, they are only used for carrying all kinds of merchandize. The wealthy Asiaticks, or Africans, ride upon them when travelling, and even when going to war.

Camels will carry twelve or fifteen hundred weight, more or less, according to their age and strength. They travel twenty or thirty leagues a-day, loaded in this manner, without drink, or food, or rest, except at night; and, in case of need, they will continue their route night and day with extremely little nourishment; for in these parched countries, destitute of wells, springs, rivers, and of lakes, water is so scarce that they can but seldom get drink. They can support hunger and thirst for four, five, or six days, without discontinuing their labours, especially, if, before their departure, they have been allowed to eat plenty, and to drink their fill. This happens in consequence of a singularity in the construction of these animals, in which we perceive a remarkable display of the wisdom and providence of nature. Attend to this.

Camels which ruminate like oxen, have likewise of course, like these, four stomachs. But beside these four stomachs, or pouches, which serve for the digestion of their food, they have a fifth, or separate sack, into which nothing enters but fresh water; so that they can drink at once, as much as serves them for seven or eight days, because this supply of water remains pure and clear in this sack. This has been experienced more than once by the caravans in travelling through these parched and burning desarts; where it has happened, that merchants and travellers, ready to die of thirst, and no longer able to endure the heat of the sun, whilst at the same time they were far distant from any water, have been obliged, as the only resource, to kill a camel, for the purpose of opening it, and drinking the supply of water that it contained in its pouch, and which was found limpid and pure; so that, after being thus refreshed, they could continue their progress through the burning sand that covers these desert tracts.

To accustom the camel to kneel when about to be mounted, or loaded, care is taken to fold his legs under him when young, and then there is thrown over his body a large carpet, or covering, above which are laid stones, so that he cannot rise, or sometimes a large belt is passed across his reins, and firmly fixed to the ground on both sides. He is kept in this posture a certain time every day, and he is tried to bear a load gradually, to which he is accustomed so much the easier as the animal naturally does not lie on his side to sleep, like oxen and horses, but upon his belly, with his legs doubled under him: so that he gets callosities, or hard tumors, on his knees, and all those parts of the body that by this means frequently rest on the ground, which prevents their being hurt by the frequent repetition of this exercise. Thus they bend their knees readily, to be loaded, and wait patiently till this be over, to rise again; but if they feel themselves overloaded, they begin to strike with their head, and to testify their impatience, so that if this be continued notwithstanding, the poor creatures fall a groaning, and uttering the most lamentable cries, and at last refuse to rise, whatever may be done, either with a view to assist or to compel them.

When it is not wanted to abuse the camels needlessly, they are rested all night; the cords are untied, and the loads, or paniers, which they carry, are let down on the ground on each side, and, after being unloaded, the animals are left to repose at liberty, and to go where they choose in quest of food, On the morning, when about to depart, their masters have only to call them; these good creatures run instantly, place themselves between the paniers, lie down, and suffer themselves to be loaded, beside which, their master commonly rides on their neck. They then set off at their pace, free and without constraint, without requiring either a bridle or a halter, without ever thinking of running off, or stopping, without stumbling or meeting with any other accident. Sometimes there are two or three hundred of them together ; the whole march in the most regular order, and with the utmost composure imaginable, without needing a whip or a switch to quicken them. The conductor, who goes before, has only to whistle, or sing, or play, since these animals are fond of musick, and keep time the whole way. A caravan never goes more gayly, and at a better pace, than when there are a great number of singers and whistlers that never intermit.

In the spring, the camels cast all their hair, and remain bare, but it is carefully gathered, because, the longest of it is spun to make stuffs, and the shortest is employed to make felt: much of this last comes to our hatters, but very little of the former. It is likewise made into stockings, but not into camelot, as some people imagine ; we have already seen that this is made of the hair of the goat, which the Arabs call caimel.

THE LLAMA.

THIS animal is likewise named guanaco; it inhabits the high mountains of South America, and also some of the islands of the West Indies. As it has some resemblance to the camel, it has likewise got the name of the American camel; but it has no bunch, is much smaller, though at the same time larger, than the goat. It has the legs long, the neck long, and arched below like the camel; the upper lip divided, the foot forked by a complete division of the two toes, a spur on each of the hind feet, which serves for clambering, and hinders it from sliding; the hair, or rather the wool, thick, white, grey, and with reddish spots.

The llama is tamed, and likewise serves for carrying burdens; but it only can carry a hundred weight and a half, and, besides, its pace is slow, for it does not travel above eight or ten leagues a-day. If overloaded, or abused in any other way, it lies down flat upon the road, and rests as long as it pleases, or till unloaded; it will suffer itself to be killed rather than rise. After night comes on, it neither eats nor walks any more till the return of day: like the camel, it can support hunger and thirst a long while. Its flesh is eaten, and its skin is used for different purposes. A singularity of this animal is, when enraged, it spits in the eyes of those that disturb it, by throwing its saliva more than ten feet through the fissure of its upper lip; and it is said, that this saliva is so acrid as to cause painful blisters on the skin.

THE PACOS.

THIS animal is more commonly called *vigogne*, from the Spaniſh name *vicuna* (not vicunna), which is pronounced *vicougna*. The pacos is a neighbouring species of the llama, differing from this only a little, either in size, which is smaller, or in shape. It has the neck and legs of the camel, and all the rest like the sheep, whilst the llama resembles the goat in those parts which are not like the camel.

The wool of the vigogne is well known for its excellence, so as to render its fleece the most valuable part of the animal. This wool is of a pale red, as soft as silk, and sells equally dear. The flesh of this animal is eaten, but the animal is little used for carrying loads, because it is weak, and is still more afraid than the llama of being overloaded, and is still more stubborn and untractable, when once it has lain down on its belly upon the road.

THE MUSK ANIMAL.

THIS animal (Plate XII. fig. 44.) which has much resemblance to the roe-buck, except in wanting horns, inhabits the mountainous and woody countries of Tartary, and of China. It is known, particularly the male, on account of a perfume, which it carries in a bag situated on the belly near the navel, and which is called musk. The odor of this is so strong, that a person would be stifled in collecting it, if he did not take care to stop his nose, and even retain his breath. Musk was more used at the toilets formerly than at present, but it is still much used by perfumers and in pharmacy.

THE CHEVROTAIN, OR SMALL ANTELOPE.

THIS is the smallest of the cloven hoofed animals, it is not larger than a cat, and of the finest shape, which has made it of much request (Plate X. fig. 33.): but is scarce, and only found in India. It is too weak and too delicate to be transported into Europe. It resembles the stag in the colour of its hair, in the length and slenderness of its legs, and in the smallness of its tail. Its flesh is eaten, and its small legs are used for filling tobacco pipes, after being ornamented with silver, or even for the funnels of pipes.

This animal, which evidently has horns, is a sort of small antelope, or rather a small goat, which the negroes call little king of the stags; whence it follows, that it is likewise found in Africa, which is more than probable.

THE WILD BOAR AND THE HOG.

The wild boar is nothing but the hog in a wild state, and the history of one is intimately blended with that of the other, since they have the same shape and the same dispositions, with no other differences between them than what have resulted from a long domestication of the one. For instance, the wild boar (Plate VII. fig. 15.) has the head and the muzzle larger and stronger than the hog, the tusks longer, and the hair called bristles, constantly black. He lives constantly in the woods, where he feeds on acorns, beech-mast, all sorts of roots and wild fruits, and whence he only comes forth to dig the neighbouring fields, where the morning shews the traces of his nocturnal researches, by those trenches and furrows that he has made with his nose. The duration of his life is from fifteen to twenty years, and the female brings forth every year from ſix to ten young.

The wild boar is very ferocious and unmanageable; he attacks dogs, horses, even men, and with the two long teeth called tuſks, which proceed from each ſide of the lower jaw, he gives them dangerous wounds, rips up their belly, and kills them on the spot. This animal, whether in consequence of the hardness of his skin, the strength of his bristles, or the thickness of his fat, is but little sensible of the severest blows; but his hearing is extremely acute, so as to excel that of all other viviparous animals*. His sight is likewise very good, and also his smell, so that he scents, at a great distance, dogs and huntsmen; but, if a wild boar perceive a dog coming upon him, he makes ready to receive him, his eyes on fire, his bristles erected, and at once darts upon him with a fury fit to frighten a whole pack; or else he conceals himself among the bushes, to be surer of his vengeance, which he exercises on the huntsmen as well as dogs. During the day the wild boar remains in his den in the thickest part of the wood, and it is only on the approach of night that he comes forth to seek his food.

Wild boars are found in almost every part of the world; but the domestick hogs are always much more numerous. These last, which we call in general hogs (Plate V. fig. 32. and 33.), have the bristles black, white, and red; they live in our dwellings, and eat every thing that we give them, fruits, grain, roots, herbs, plants, legumes, bread, &c. They constantly dig the ground with their muzzle, and catch worms and mice, which they eat, with all sorts of filth, and all with extreme voracity. Thus they have been reckoned by the Jews, in every age, as impure animals, which they were prohibited to eat: in which opinion they continue at present, and also the Turks.

---

* According to the following well known distich, in which are represented five different animals, each of which excels man in one of the senses:

Nos aper auditu prœcellit, aranea tactu,
Vultur odoratu, lynx visu, simia gustu.

Which does not mean, however, that these alone excel us in one or other of the senses.

When we wish to fatten hogs, we must not suffer them to want food a single minute, so much are they stimulated by their greedy and capacious stomach to be constantly occupied in this function; so that this animal seems made for no other purpose but eating. They frequently become so fat, and fill their paunch to such a degree, that they can stand no longer, and are ready to choke. They are likewise so indolent and lazy, that they remain whole weeks on the same spot without stirring; and, in this situation, mice and rats sometimes eat their lard without their observing it, and nestle in the holes that they have made.

Rain and wind, thunder and lightning, are things that hogs cannot bear: thus, as soon as a storm arises, while they are feeding in the fields, or if it comes on a heavy rain, they fall a running instantly, one after another, to regain their house, crying with all their force.

The intire males, are called boars.

Every part of a hog is useful, the flesh, the lard, the intestines, the blood, the bristles. The firmness and whiteness of the fat, as also the taste of the bacon, depends on the manner of curing it, but chiefly on the food that is given to hogs. The lard is greatly used in pharmacy; it is excellent for greasing the axles of carriages; it is sometimes eaten. The skin of the hog dressed is used by bookbinders, saddlers, and other artisans; the bristles serve to make brushes, besoms, pencils, &c.

THE MEXICAN HOG.

THIS animal is a native of South America, and is also called pecari: it has a slenderer body than our hog, the legs short, no tail, the bristles black and white, and almost as hard as the prickles of the hedge-hog. It is particularly remarkable, however, on account of a pouch which it has situate on its back, in which is collected a quantity of matter of the thickness of milk; which, at a distance, has the smell of musk, but when near gives a most insupportable odor. It eats grain, fruits, roots, serpents, lizards, toads. Its flesh is considered as a delicacy by the Brasilians, who take it young in the woods, and afterwards rear it at their houses.

THE BABYROUSSA.

THIS is the name of a species of hog found in the Moluccas, which, instead of bristles, has fine hair, and which, from four long crooked tusks that it has, has a formidable appearance. It eats grass and leaves. It is said to suspend itself by its tusks to the branches of trees, for the purpose of sleeping more securely: but it is more natural, if indeed it have been seen suspended in this way, to account for this, by the efforts that it may have made to draw some branch to it, in order to browse the foliage, whilst the branch, perhaps too strong, may have raised it into the air as it was elevating itself to lay hold of it.

The large tusks of the babyroussa are as white, hard, and fine, as ivory. This animal has some resemblance in shape to the stag, which, in some countries, has procured it the compound name of the hog-stag.

SIXTH CLASS OF VIVIPAROUS.

The sixth class comprehends those animals, which, instead of hair or bristles, have their skin garnished with prickles, scales, or a kind of shells, and which, besides, possess the power of rolling themselves together like a ball: these are the hedge-hog, the porcupine, the armadillo, and the manis.

THE PORCUPINE.

This animal, which is found in the south of Asia, and also in Spain and Italy, is two or three times as large as a cat, and covered with long prickles, black and red, which it can erect and depress at pleasure. It has the muzzle or snout cloven, the ears round, the toes furnished with nails, and it grunts like a hog. See Plate X. fig. 34. It eats serpents, rats, mice, as well as roots, fruits, and grain of all kinds. The longest of its prickles are near two feet, others are not above half a foot: they serve to defend the animal against those attacks to which it is exposed; for it possesses the power of retracting its head and feet, and of rolling itself together so as to present only a ball armed on all sides with prickles, and which may be rolled up and down without hurting the animal. Thus, when it perceives a man, a lion, a tyger, a leopard, or any other enemy approach, it gives itself a sudden shake like a dog on leaving the water, and, at the same time, by erecting its quills, and by making a great noise with these, endeavours to frighten it away. If this stratagem does not succeed, however, it then rolls itself up like a ball, and continues without motion. As it cannot be touched in this situation, there is no animal capable of injuring it: and this simple contrivance is sufficient to extricate it from the greatest dangers, and to make even the lion himself recoil.

Man, who takes every thing, can easily, it is true, make himself master of the porcupine; but even when we have taken him alive, we need not expect to confine him with ropes, or in wooden cages: he eats, gnaws, pierces every thing, and nothing but iron is safe against the attacks of his teeth. As to taming him, that is out of the question; he will not submit to bondage; and if allowed to go abroad to catch mice, rats, serpents, he does not return again.

An idle report prevailed formerly, that the porcupine used to run before his enemy, making a great noise with his armour, and that he could dart a quill at him that would dispatch him: so that he might in some sort be considered as, at once, the bow, the arrow, and the archer. This, however, is perfectly impossible; his whole defence consists in rolling himself together. It is true, that he kills serpents with his quills, but this is done still in the same way by drawing himself together, and rolling over them till they are pierced with holes; after which he eats them. The flesh of the porcupine is eaten, and his quills are used for making the hafts of pencils, for bodkins, and tooth-picks.

THE HEDGE-HOG.

THIS animal is likewise armed with prickles, like the porcupine, excepting on the belly, on the throat, and under the muzzle, but much smaller: and, besides, it is scarcely itself the size of a cat, Plate VI. fig. 16. It can likewise roll itself up; and the more it is teazed by a man, a dog, or a fox, turned, re-turned and rolled about, the closer it draws itself together, presenting its sharp prickles. Besides, in consequence of the anxiety with which it is seized, it discharges its urine which smells very ill: so that a dog after fumbling at it a little, leaves it, and goes its way. But the fox, a little more cunning, is not disgusted at such a trifle; he pays the hedge-hog back in the same coin, and sprinkles him, in his turn, copiously with his urine. The poor bepissed animal, which fears water as much as fire, and still more, warm water, prepares to make its escape by unrolling itself; the fox wants nothing else; and, as the creature does not happen to be very swift, he soon finds means to catch it.

Hedge-hogs are found every where in France, and in all the other countries of Europe, as also in other parts of the world. They frequent woods, gardens, retreat into the hollow trees, bushes, thickets, heaps of stones, and even into holes in the ground: they eat all sorts of fruits and roots, potatoes, carrots, radishes, &c.; beside rats, mice, spiders, grasshoppers, toads, frogs, and other small animals. They live from ten to fifteen years; and the female brings forth every year four or five young.

It was a mistake to allege, that the hedge-hog got upon trees, and tumbled down apples or pears for the purpose of eating them on the place. But it is true, that it rolls itself up like a ball to roll beneath trees, where it finds apples; and when it finds that it has intangled some, it makes off with them to its hole. It generally comes forth only at night to plunder, and remains all day in its hole. It has likewise been accused, unjustly, of milking cows and goats, and it is curious to observe some people still give credit to such a fable.

The hedge-hog may be tamed, and may be kept in the house to catch mice: for it understands this business still better than a cat. Its flesh is eaten, and its skin, with the prickles, is used for making different utensils. During winter it continues rolled up in its hole, in a hollow tree, or at the foot of a bush, concealed under a little grass, a few leaves or moss, and continues their in a torpid state till spring.

We find two sorts of hedge-hogs in our climates; one that has the muzzle of a hog, the other that of a dog; which is there only difference. There is a species in India, particularly in Malacca, in whose bodies a kind of bezoar is found, of the size of a hazel nut; and sometimes of a walnut. These bezoars, known formerly under the name of *pedra del porca*, hog-stones, were considered as such a valuable remedy, as to be set in gold, and hung at a chain of the same metal, by means of which they were suspended some minutes in a glass of water, or of wine, in the belief that they communicated to the liquor a medicinal quality of the greatest efficacy. (You may consult upon this subject the German translation of the works of Buffon, by Martini.)

THE ARMADILLO.

This is a singular animal of South America, nearly the size of a rabbit, and incrusted with ossious scales. It has the head thin and long, the muzzle like a horn, very long and slender, long ears, and also a long tail, but the legs short. See Plate IV. fig. 2. It eats rats, fruits, and all kinds of things. Its flesh is also eaten.

A great number of species of this animal are reckoned, which however differ only in the shape and number of the scaly belts which cover them. All of them possess the power of rolling themselves up like the hedge-hog, and of escaping like it, by that means, their enemies, which cannot pierce their ossious covering: or they suffer themselves to roll down in this condition to the bottom of precipices, where they are safe. This natural shield is covered with a thin pellicle, that forms on the surface a beautiful varnish, and which is of an admirable structure. The armadillos multiply rapidly, since the females, it is said, have every month a birth of four young.

THE MANIS.

This is a pretty small animal, not larger than a small cat, which inhabits Asia and Africa, and particularly the island of Formoso, near China, whence we have given it the name of the devil of the island of Formoso. The Indians call it phatagen, or pangolin, which are two neighbouring species that we have already mentioned under the article lizard. From some resemblance in its shape, it has got the name of scaly lizard; very improperly, however, since the lizard is an oviparous reptile, and the pangolin a viviparous quadrupede; the singularity of its shape has more generally procured it the name of the devil. It is covered with hard sharp shells of a dull brown, which are situated something like the leaves of an artichoke, or still better, like the scales of a fir-cone. It has the tail longer than the rest of the body, the tongue very long for catching ants, on which it subsists, or other small insects, and has no teeth in the mouth. It can likewise roll itself up, but so that the head and the tail remain out, and this last forms a belt that surrounds the whole: besides, this is sufficiently garnished with sharp scales, which prevent any animal from biting it, so that it may be considered as the best armed of those animals that are not carnivorous, not even excepting the porcupine.

SEVENTH CLASS OF VIVIPAROUS.

THE elephant, the tapir, the hippopotamus, the rhinoceros, these are the monsters (if I may be allowed to abuse the term), which compose this class. They are the largest of terrestrial animals, and their skin almost naked, or destitute of hairs, gives them likewise a disagreeable appearance, that might seem to justify the name of monsters, which I have improperly bestowed on them.

P. But are they not monsters then, these nasty animals that one is afraid to see?

M. A monster is an animal that is produced with a considerable deviation from the common structure of its species, that is, of the male and female that produced it. Thus, whenever a large animal resembles its father and mother, however singular their shape may be, it is no more a monster than you and I, who have likewise this general resemblance of shape to our parents and to other men. However, as we seldom see animals of such an enormous size, and of a shape so different from those with which we are accustomed, we have got a habit of calling them monsters, to express merely that they are unusual to us, and that they seem to exceed the ordinary limits of nature in the productions of that class. We in particular frequently call sea animals monsters, because we are still less accustomed to view the various shapes of animals contained in the vast abysses of the deep. Thus, you see that monsters may be produced even in the vegetable kingdom, and frequently are. But to return to our large animals, let us begin with the largest and the most worthy of attention, which is the elephant.

THE ELEPHANT.

In reality, this may be said to be the largest living animal which God has placed upon this earth. His height is from twelve to fifteen feet, and his thickness exceeds that of four oxen, placed two beside, and two above, one another.

He inhabits Asia and Africa, and frequents, in particular, moist countries, covered with wood, and watered with rivers. He eats grass, leaves, rice: the female, it is said, brings forth every second or third year a single young one at a birth; these animals live from a hundred and fifty to two hundred years. But it is difficult to fix precisely the age of elephants: when you ask an Indian the age of his, he answers that his grandfather had him thirty years, his father fifty, and that he himself has had him above ten; we derive no certainty from this. As to those that are sometimes brought into Europe to be kept in the menages of princes, they scarcely live there thirty years. However, these uncertainties do not authorise certain travellers to relate to us that they had seen elephants four or five hundred years of age.

P. Is an elephant large when it is brought forth?

M. Nearly the size of a small horse; but, to tell you the truth, it is a thing that we have not yet been able to know exactly, for no person has ever seen a female elephant bring forth. It is true that young ones have been seen, which the mothers carried, but their age could not be accurately known. But I shall now proceed to give you a description of this wonderful animal, which you see represented in Plate X. fig. 23. His body resembles rather a large shapeless mass supported upon four rude pillars, than a living organized body, or an animal. This mass is covered with skin a full finger thick, of an ash grey, without hairs, full of wrinkles and chinks, coarse, dry, and uneven, almost like the bark of an old oak, on which we perceive here and there a few scattered bristles similar to those of the boar. His legs resemble the trunks of four middling trees, without any other particular shape, and are terminated by clumsy feet, like large round plates, which support the legs, and form a sort of border round them. The under part of the feet are furnished with a skin or sole, of the consistence of horn, and an inch thick; but the foot is short in proportion to the rest of its body, and is not above half a foot long by the same breadth, with five kind of toes, at least on the fore feet, those behind being narrower, and having only four. His tail is small, and garnished with a tuft of hair at the extremity; but his head is of a prodigious size, and his eyes, which are lively and brilliant, are small in proportion. Two large broad pendulous ears are situated one on each side, flat and open like ours; and what completes the singularity of his appearance, is his trunk, which is a kind of moveable snout or muzzle, six feet long, at the base of which is concealed his mouth, from which proceed two tusks of a prodigious length.

P. But for what purpose is this trunk?

M. For every thing: it is a hand, a nose, a pump, it is a muscular arm, which extends and contracts at pleasure: in a word, it is an admirable instrument. This singular tube hangs down at length between his tusks; it is a fleshy and cartilaginous organ, hollow within, which he can extend to six feet or contract to two; which he twists and folds in every direction with the greatest facility; which serves for breathing through, for drawing up the water, which he afterwards pours into his mouth; and likewise for taking hold of his food and carrying it to his mouth. This trunk is terminated by a kind of moveable finger, with which he can gather, on the ground, or on trees, flowers, which he, smells and eats with a particular pleasure, especially those of the orange tree, from which he sometimes breaks down whole branches to eat them with the leaves, flowers, and fruit. With this species of hand he plucks the grain off the ears of corn, and afterwards makes wisps of the straw to drive away the flies ; he lifts from the ground the smallest piece of money, unties knots, takes an apple or a bit of bread out of your pocket, lifts a bottle from the ground, takes out the cork, empties the wine or spirits into the hollow of his trunk, which he afterwards bends and applies to his mouth, to discharge the liquor into this, for the purpose of swallowing it. He opens a door by turning the key, or by pushing back the bolts, and shuts it in the same way. He takes off a hat from a person's head, and replaces it neatly; in a word he can write with his trunk, and do a thousand things that would be tedious to mention. Thus, it may be said, that in this organ are united the greatest niceness with the most surprising strength ; for with this same trunk he takes up a large load and places it on his own back ; he lays hold of a man, or any other animal that irritates him, and throws him to a distance; with this he even tears up trees, and kills the most formidable enemies.

Is not this more than could reasonably have been expected from an unwieldy mass of animation, that, at first sight, seemed only capable of drinking, eating, and sleeping?

But if this be admirable, what is still more so, is the wonderful instinct, the intelligence with which he executes all this, and every other thing that he is ordered : an instinct, whose various workings are expressed in the clearest manner in the looks of this animal, according to the occasion. He is gentle, patient, extremely susceptible of attachment, of gratitude, of resentment, very docile, attentive to every thing that is going on about him, and particularly when his master or some other person speaks or makes ſigns to him. He is punctual in the execution of what is ordered him and far from intending an injury to any person, unless he be irritated; for it must be acknowledged that, when teazed, he becomes enraged, and in his fury pays no more regard to the life of a man than we should to that of an insect that plagued us. If an idle or a rash Indian throws himself in his way, and obstinately remains there, or thrusts himself between his legs, the elephant takes him up in his trunk, raises him, gives him a rude shake, as much as to tell him, take care, I could crush thee, if I were enraged; he then sets him down on the ground, and allows him to escape. But, if any one be ill enough advised to use him ill, or to take too much freedom with him, then he avenges himself with a blind fury; he seizes the ill-fated wretch, dashes him rudely on the ground, crushes him with his feet, or runs him through with his tusks, and leaves him either dead or with his limbs broken. What is more, if he cannot take his revenge immediately, he keeps in mind the injury that has been done him, and, on the first opportunity, recollects the person in such a manner as to make him remember him again. His memory, however, serves him equally in respect of those who have done him a favour, and he does not let slip an opportunity of shewing his gratitude. Besides, he possesses, like the lion, a great deal of generosity, and a kind of elevation of mind that leads him to defend the innocent: of this there are many striking examples, one of which I shall now give you.

cially those of the orange tree, from which he sometimes breaks down whole branches to eat them with the leaves, flowers, and fruit. With this species of hand he plucks the grain off the ears of corn, and afterwards makes wisps of the straw to drive away the flies; he lifts from the ground the smallest piece of money, unties knots, takes an apple or a bit of bread out of your pocket, lifts a bottle from the ground, takes out the cork, empties the wine or spirits into the hollow of his trunk, which he afterwards bends and applies to his mouth, to discharge the liquor into this, for the purpose of swallowing it. He opens a door by turning the key, or by pushing back the bolts, and shuts it in the same way. He takes off a hat from a person's head, and replaces it neatly; in a word he can write with his trunk, and do a thousand things that would be tedious to mention. Thus, it may be said, that in this organ are united the greatest niceness with the most surprising strength; for with this same trunk he takes up a large load and places it on his own back; he lays hold of a man, or any other animal that irritates him, and throws him to a distance; with this he even tears up trees, and kills the most formidable enemies.

Is not this more than could reasonably have been expected from an unwieldy mass of animation, that, at first sight, seemed only capable of drinking, eating, and sleeping?

But if this be admirable, what is still more so, is the wonderful instinct, the intelligence with which he executes all this, and every other thing that he is ordered: an instinct, whose various workings are expressed in the clearest manner in the looks of this animal, according to the occasion. He is gentle, patient, extremely susceptible of attachment, of gratitude, of resentment, very docile, attentive to every thing that is going on about him, and particularly when his master or some other person ſpeaks or makes ſigns to him. He is punctual in the execution of what is ordered him and far from intending an injury to any person, unless he be irritated; for it must be acknowledged that, when teazed, he becomes enraged, and in his fury pays no more regard to the life of a man than we should to that of an insect that plagued us. If an idle or a rash Indian throws himself in his way, and obstinately remains there, or thrusts himself between his legs, the elephant takes him up in his trunk, raises him, gives him a rude shake, as much as to tell him, take care, I could crush thee, if I were enraged; he then sets him down on the ground, and allows him to escape. But, if any one be ill enough advised to use him ill, or to take too much freedom with him, then he avenges himself with a blind fury; he seizes the ill-fated wretch, dashes him rudely on the ground, crushes him with his feet, or runs him through with his tusks, and leaves him either dead or with his limbs broken. What is more, if he cannot take his revenge immediately, he keeps in mind the injury that has been done him, and, on the first opportunity, recollects the person in such a manner as to make him remember him again. His memory, however, serves him equally in respect of those who have done him a favour, and he does not let slip an opportunity of shewing his gratitude. Besides, he possesses, like the lion, a great deal of generosity, and a kind of elevation of mind that leads him to defend the innocent: of this there are many striking examples, one of which I shall now give you.

An elephant, finding himself under the management of a cornack (which is the name given to the person that conducts an elephant), who treated him very severely, gave him almost constantly bad food, teazed and struck him constantly without reason, had constancy enough to support for a long while this cruel treatment. At last, however, the cornack carried matters so far, that the elephant, no longer able to suffer it, and giving way to his passion, seized him with his trunk, threw him on the ground under his feet, trampled upon him, crushed him, pierced him with his tusks; in a word, killed him completely. All this was done in an instant, and in presence of the cornack's wife with her two children.

This poor disconsolate widow, enraged in her turn at the elephant, reproached him loudly with the murder; and, in her agony, taking her two children, threw them at his feet, while the paroxysm was still upon him, saying, here, monster! since thou hast killed my husband, kill also my children, and take my own life also. . . . . .

The elephant, affected at this sight, stopped short, seemed to regret the action which he had committed, and, instantly composing himself, he gently approached the eldest of the children, took him up with his trunk, placed him on his back, and from that moment would allow no other cornack to conduct him.

You will certainly hear, with equal pleasure, the following anecdote, which will shew you the gratitude of these animals to such as have done them a favour.

A soldier, having taken a fancy to an elephant, had a custom of regaling him almost daily with a piece of bread and a glass of brandy, and was become so familiar in other respects with him, that the elephant allowed him to handle his trunk at pleasure, and permitted a thousand liberties on his part. One day, however, it happened, that, the soldier having got himself intoxicated, and neglected his duty, was sent for to be apprehended. His comrades who had been sent on this friendly errand, found him indeed, but lying between the legs of his good friend the elephant, where he was sleeping off his former debauch in a profound sleep. Frightened a little, they stopped a few minutes, without knowing what to do; but their chief, wishing to proceed, began to lay hold of the drunken soldier by the arm, and to pull him from under the elephant. This last, however, with a slight stroke of his trunk, threw him twenty paces, and broke two of his ribs; so that the poor man died of it soon afterwards; he was then preparing to do the same with the rest, if they had not made their escape. When the poor fellow wakened, he was not a little surprised and frightened to perceive the four posts of his bed; but after he had learned the service that his good friend had done him, he embraced him most cordially, and doubled, as you must easily imagine, his ordinary allowance of bread and spirits.

We have seen that the elephant is susceptible of hatred and of resentment; but one of the things that vexes him the most, and inflames him to the highest pitch, is to promise him, or to make him expect, something that we show him, and not to keep our word, especially if this respects wine or spirits, which are his favourite beverages. The person who sports with him in this manner, and makes a fool of him, had need take care to keep out of the reach of the enraged animal; for it will cost him dear. But, in return, by taking care to keep our promise with him; and, after he has had proofs of the fidelity of any one, that person has only to show him a bottle, or what he means to give him, to make him go wherever he has a mind, to make him draw, carry, push, run wherever he chooses. But I shall give you the following story that will serve as an instance of his resentment in a similar case, and as a proof of his singular intelligence.

A painter, being desirous to draw an elephant in an extraordinary attitude, which was keeping his trunk erect, and his mouth open, had taken his servant along with him, who, in order to make the animal continue in that fatiguing posture, kept constantly throwing fruits into his mouth. But, as this would have required a large quantity, or at least more than he had with him, frequently he made only the motion of throwing them. The elephant, after patiently submitting to this disappointment for a number of times, grew weary at last, and was offended at being the dupe of this man. Now, do you imagine that he fell upon the servant, and took his revenge on him for this insult? Not at all. He had remarked that, though the painter was sitting quietly in a corner without meddling with him, still, however, it was by his orders, and on his account, that the other teazed him thus: he therefore addressed himself to the master, and, without taking any notice of the other, threw a large mouthful of water upon him which he had in his trunk, and spoiled the paper on which the man was working. How like you that?

P. Truly, that was showing a great deal of spirit, for so large an animal. But if I had been in the painter's place, I would have pretended to give my servant a good drubbing, and to satify the elephant still more, that it was not my fault, nor for my amusement, that he had been thus cheated, I would have ordered the servant to bring instantly plenty of fruits, to see whether or not the elephant was likewise disobliged at the intention of drawing him.

M. Yes, that would have been making an experiment.

P. But, when a person observes that the elephant is enraged, and that he wishes to be at him, he has only to make his escape; I believe the elephant cannot run well?

M. You believe? A large animal that takes a step of eight or ten feet long, or more, you may believe it would be long before he could get hold of you, nimble as you are? Though you were the best runner in the country, an elephant, at a simple walk, would outstrip you. An elephant, in a single day, travels as far as a man in four or five, and even more, when pushed; judge then at what rate he goes when at a gallop! for well can he do it. Thus he is used advantageously in India for travelling, especially on account of the prodigious loads that he can carry; for he will carry thirty hundred weight on his back. This load will not even hinder him from swimming, for he swims excellently; and, whilst he continues in the water, he keeps the extremity of his trunk above the surface for breathing through. Frequently, beside his load, he carries also half a dozen Indians, some astride his long tusks, others mounted upon his ears, and others holding him by the tail. He is made to haul pretty large vessels to the shore; he is employed to load and unload them: one frequently sees a whole family mounted upon an elephant, father, mother, children, servants, baggage, and travelling in this condition from one village to another.

Formerly elephants were used in war; and troops of several hundreds were conducted thither, each carrying on his back a kind of turret large enough to contain thirty or forty armed soldiers.

P. But are there herds of elephants then, as there are of oxen?

M. Yes indeed, herds! of a certain kind. Some Indian princes have pretty numerous flocks: but these herds are not like those of oxen, because the females never produce young in a state of captivity, so that their number never increases as happens with our cattle.

P. But why that, dear Sir?

M. Because the elephant is an extraordinary animal, altogether distinguished from other beasts. As soon as he is taken, confined, reduced to servitude, or tamed, and become the slave of man, in a word, when he no longer finds himself at liberty in the woods, he no longer generates; at least, there is no instance of a domestick female elephant producing young. However, at that period, when they come in season, they are observed to be furious and mad: and, notwithstanding this fury, they never cover the female elephants that are with them, as horses, bulls, and our other cattle do. We cannot say precisely whether this arises from elevation of mind, or from pride; that is, that they may not beget slaves for the profit of their master, who has debased them so far as to reduce them to servitude. If this was the case, they would not be attached to their masters, they would not serve them so willingly as they do, whilst, at the same time, they might easily make their escape, especially such tame ones as are conducted into the woods to attract and to take those that are wild. But it has been observed that these animals seek the most remote and solitary places to cover their females; from which, it may be presumed, that it is the impossibility of accomplishing these functions in a situation sufficiently retired, that prevents domestick elephants from yielding to their mutual inclination like our other cattle, which either want this respectable instinct, or possess it in an inferior degree. So that, if they were allowed to return to the forests at the time when they are in season, to impregnate the females, and were afterwards sought back again, we might perhaps succeed in obtaining studs of elephants, as we have of horses. It is extremely probable that this experiment would succeed, at least, if the elephant, accustomed to more succulent food than he gets in a domestick state, could return for this short interval to his former wild life in the forests: the probability is still farther increased too from the ardour of their amorous passions. The Indians never thought of this expedient; but it is surprising that the Europeans, who have formed such extensive settlements in these remote countries, should not have entered into this idea; so that still, when one elephant dies, they are obliged to seek another wild one to supply his place, and to tame him like his predecessor.

P. But do they suffer themselves to be taken so easily?

M. In reality, a person would imagine that so powerful an animal could not be reduced to slavery, without his own consent; however, it is not the case; the elephant loses his liberty with regret, and man does not succeed in depriving him of it but at the risk of his own life. But several men are necessary to take a live elephant and to conduct him along with others; ten or twenty at least commonly assemble for the purpose, and these conduct tame elephants, particularly females, with which they attract him into a corner, where they endeavour to throw a cord on his leg, so as to get hold of him. Some of them are likewise taken in snares, or in large deep ditches covered over with leaves, or in other ways. In a word, when they cannot be taken alive, they are hunted, and a number of them killed, to prevent their too great multiplication: for these wild animals commit prodigious havock in fields of rice; and, if they were too numerous, would crush the Indians in their slight huts like nut-shells. The elephant is particularly fond of rice; it is to no purpose that the Indian watches his field night and day, makes a noise with drums, and kindles fires (two things that the elephant is extremely afraid of), he finds an opportunity to enter the field notwithstanding; and, in one night, will lay it intirely waste, without leaving a single ear, as well in consequence of the vast quantity he eats, as of that which he treads down with his large broad feet.

But a great number of them are constantly taken every year; and there are few Indians that have not at least one, whilst the wealthy have dozens of them, and princes twelve or fifteen hundred, which are entertained magnificently, to support the royal dignity. But happy, a thousand times happy, is that person who has the good fortune to obtain a white elephant; this is an honour that sovereigns reserve for themselves, and even dispute with one another, in consideration of the great esteem in which they are held in these countries: not so much on account of their being rare (as are also the red ones), as from the fabulous notions entertained respecting them. However it be, such a piece of good fortune causes extraordinary joy among the people. At Siam, among other places, a white elephant is reckoned a sacred animal; divine honours are paid to him; thousands of men attend him; he is loaded with gold and precious stones; his food is served up in vessels that are gilded, or of solid gold; he is lodged magnificently; and every person must bow the knee before him.

As to the common elephants, the ordinary price of a beautiful one, in India, and particularly in the islands of Java and of Ceylon, is from thirty to forty crowns. But one cannot be brought into Europe without costing above a thousand crowns; which is not surprising, considering the length of the voyage, which lasts near a year; and the expence of his food, which costs near two crowns a-day, frequently more. For these animals are not satisfied with a handful of moss, like the rain-deer, or with a ball of paste like the camel; they must have each day fifty or sixty pounds of bread, or at least a hundred weight of hay, to fill their paunch, besides pails of drink.

P. He is a perfect Gargantua, the elephant!

M. Nearly so, only that he is not carnivorous, and requires neither sheep nor calves; otherwise he would cost much more. There was one in the royal menage at Versailles, which, though small, and, at most, half size, consumed every day eighty pounds of bread, twelve pints of wine, and two pailfuls of pottage, which contained the four or five pounds of bread, instead of which he got every other day two pailfuls of boiled rice and water: without reckoning upon what he received from people that came to see him, and a sheaf of corn that he got every day to amuse him, and the grass which he broused in the walks which he got every day. He died in 1782, at the age of eleven only, and he already weighed five thousand weight: his head alone weighed five hundred pounds, and his skin above seven hundred. In short, travellers relate, that, in India, an elephant eats above a hundred pounds of rice a-day. There was a fine one in the menage at Cassel in Germany, that had a separate apartment for himself and the man that took care of him. This animal consumed every day sixty pounds of bread, several pounds of hay, and two bushels of yellow carrots. But he died at fourteen, without having any tusks, whether they had fallen out by accident, or whether he was perhaps still too young to have acquired them.

Some of these tusks are about four feet long, twice as thick as one's arm at the base, and weigh a hundred and twenty or a hundred and fifty pounds. They proceed from the upper jaw, are hollow towards the base, and solid from about the middle to the extremity.

This is the substance called ivory, of which are made dice, combs, balls, pins, billiard-balls, pocket-books, counters, the heads of canes, and a thousand other pretty things.

But you may well laugh at this animal so superior to others in size and in intelligence, when you hear of his foibles; for there is nothing without them in this world. Only guess a little, what that most formidable animal is, which the elephant is so much afraid of? A rat! Yes, a rat or a mouse is sufficient to make the fiercest elephant recoil: this animal cannot bear them, and, as soon as he perceives one, he instantly turns back. No doubt it is because these little knaves enter his trunk while he lies asleep on the ground, and afterwards cost him infinite trouble to dislodge them. Thus, when he lays himself down to sleep, he takes great care to apply the orifice of his trunk so close to the ground as to prevent the entrance of these troublesome guests.

The elephant, however, has, no doubt, more formidable enemies, and over which, notwithstanding the advantage of strength, he does not always get the superiority, because they possess more agility, address, art, and in particular have better arms. Such are the tapir, the leopard, the the lion, the rhinoceros : this last pierces him with his horn in those places where the skin is thin ; the others leap upon his back, fix themselves by their ſharp claws, and suck his blood till he falls down dead : or elſe, they fix by his trunk, and shut up the orifice through which he breathes, or perhaps tear away so much of his flesh with their teeth as puts an end to his life. A large elephant weighs generally four thouſand weight ; his flesh is eaten.

THE TAPIR.

THIS animal, which is likewise named *anta*, and also the water-hog, is only the size of a large mule, and is still the largest of those found in the new world, after the bison or bunched ox. It is found in troops in the forests of South America, in the neighbourhood of marshes, lakes, rivers. It reſembles the elephant and the hog in its figure ; it has the grunt of this last, the head thick and long, and a kind of trunk, its upper lip reaching beyond its under one more than a foot, so as to form a particular member, of the thickness of one's arm, moveable like that of the elephant, and nearly of the same shape, but without any finger at the extremity, so that he cannot use it so cleverly, and only uses it for taking hold of his young, to place them on his back, or for laying hold of the vegetables on which he feeds. The tapir (Plate IV. fig. 4.) has the neck broad and short, the back arched, the legs thick, and the pasterns divided into four before, and three behind; the tail short, and the hair red, like a cow. He lives thirty or forty years: and the female brings forth one young every year.

The flesh of this animal is eaten, and his skin is used for making clothes, for covering huts, and shields. It is a melancholy dull animal, fond of darkness, comes forth only at night, and frequents the thickest forests, near marshes and water, into which he plunges as soon as he perceives any enemy: for he swims well, even under water, and to a great distance, before he raises his trunk again for breathing. He is terrified prodigiously at night, the time for hunting him, by presenting lighted torches to him: and at this period it is easy to kill him. He has no horns, but only two small tusks that rise from the lower jaw.

THE HIPPOPOTAMUS.

THIS Greek name, which signifies river-horse, is that of a large quadrupede, likewise called aquatick ox, and which, though less than the elephant, is next to him, the largest and weightiest animal that treads the earth. In his shape, he partly resembles the hog, and partly the ox, of which last he has also the low; he has the head very thick, and the mouth, in particular, extraordinarily large, but the eyes small, the ears the same, the tail short and thick, the legs thick and short, and four toes on his feet. His skin is black, thick, and almost intirely destitute of hairs. See Plate IX. fig. 28. He frequents the rivers and the lakes of Africa, particularly the Nile, for he is fond of water; he eats fishes, grass, rice, millet, the roots of trees, and lives forty or fifty years. The female brings forth one young every year.

During the day, the hippopotamus sleeps concealed among the reeds, or in the sand, without concerning himself about what is going on around him, and betrays his presence by a sort of deep snore. On the approach of night, he comes forth, and goes in quest of his food, either on the land, or on the water, injuring no person so long as he is suffered to depopulate the rivers, and lay waste the fields of rice, that are commonly situated beside them, at his pleasure. But if he be teazed, attacked, or, still worse, wounded, he then becomes furious, assaults his enemies, nor quits them till they be conquered, torn in pieces, dispersed, or till he be killed himself, which is extremely difficult, unless he be struck on the head. Upon the back, and on the belly, his skin is so thick, so hard, so impenetrable, that an arrow, or a ball, only glides upon it.

If he be attacked in the water, his enemy can scarcely escape him, because he swims with such surprising agility, even under water, where he can traverse a space of several hundred feet, without the necessity of coming to the surface to breathe. Thus he renders the navigation of the Nile very dangerous, because he frequently makes his appearance above water, when least expected, raises up the boat, and generally turns it upside down. But it is particularly when wounded, or when he has been fired at, that he shows his strength in this way: he seizes the planks of the boat with his teeth, and makes great holes in them, that either ſink the boat, or occasion great danger to those that are aboard, and who frequently find it difficult to escape him.

The hippopotamus has a great number of teeth, that are all ſtrong; but he has four, particularly in the under jaw, of a foot long each, as thick as an ox's horn, and twelve or fifteen pounds weight, whiter and harder than the tusks of the elephant, so as to strike fire with steel like flint, or when the animal strikes the two jaws one against the other. As they are not subject to become yellow like ivory, they are frequently employed in preference. On the other hand, this animal is very heavy and unwieldy at land, where he runs with difficulty; therefore, he no sooner sees or hears a man, than he instantly endeavours to regain the water. He is not capable of being tamed, at least easily. He has the crocodile for his enemy, and he pursues it wherever he can. It has been imagined that hippopotamuses were more numerous formerly than at present, because the antient Egyptians had their figures engraven on their pyramids, and the Romans had impressions of them struck on their coins: but this would seem to prove the contrary, and that it was, at that period, a rare animal. The flesh of the hippopotamus is eaten. When full grown, this animal weighs near three thousand weight; and his skin alone frequently weighs near one, it is so thick: it is therefore of good use.

THE RHINOCEROS.

THIS Greek word, which is properly written rhinokeros, and signifies nose with a horn, or, as we might say, *nasicorne*, is the name of an animal, whose figure is still more singular than those we have just mentioned. When arrived at his full growth, he is about twelve feet long, and nearly eight high; thus he approaches the size of the elephant: besides, he has similar dispositions, and is found in the same countries. What gives him a frightful aspect, or at least a curious one, is a large horn, three feet long, very hard and strong, which he carries on his nose, which is not deciduous, and which, instead of being connected at its base to the bone, as in other animals, is only a prolongation of the skin. Then his head too, is strangely shaped, and terminated by a kind of small trunk, so that his upper lip, extending beyond the under one, takes the shape of a sort of sharp, moveablé bill, which the animal can extend and contract at pleasure, can double, and use for laying hold of objects that are not too large, or for pulling grass, sugar canes, ears of rice, on which he feeds. He has also two long ears, very stiff, and very small eyes, and a skin that is extremely coarse and thick, of a greyish black, and without hairs, but forming on his body prodigious folds or rumples, in so singular a manner, that he has the appearance of being harnassed, or covered with half a dozen coats of

mail.

mail. Then, he has two thick legs that are not three feet long, feet with three toes, a belly almost reaching the ground, and a tail short and naked, except at the extremity. This animal lives forty or fifty years; and the female produces one young every year. See Plate X. fig. 11.

The rhinoceros lives almost constantly in the neighbourhood of marshes, lakes, rivers, because he is particularly fond of working in the mud. He is a peaceable animal, and without being afraid of any other, never does the smallest injury, unless when attacked himself; but when attacked and wounded, nothing can equal his dreadful, undistinguishing fury; friends and enemies, he overturns every thing that is in his way; whilst nothing can stop his progress, which is rapid, neither trees nor rocks, which he uptears with his invincible horn, nor animals, bears, tygers, or others, which he tosses in the air like play-things, or even the elephant himself, which he knows to pierce with his horn, in those places where he is vulnerable; sometimes he gets the victory, sometimes the elephant, as being more cool and deliberate, which carries it. Thus, whilst the elephant knows bounds, even in his fury, thinks no longer of his enemies than while they are in sight, and can spare and even protect innocence, the rhinoceros kills every thing that comes in his way, continues in a rage for whole days, and, when he has lost sight of his enemies, exercises his fury even upon inanimate objects.

This violent and ungovernable disposition renders him little susceptible of being tamed and subjected to the service of man, though, it is said, that in Abyssinia, the same advantages are derived from him as from the elephant. He is only killed then for eating, and to obtain his skin, which, being the hardest of all animals whatsoever, serves the Indians and Abyssinians for making coats of arms, bucklers, for various utensils, and even, as is said, ploughshares. His horn, which is remarkably hard, all solid, bent backwards, and of a grey brown, serves likewise for making various articles.

Rhinoceroses are sometimes found with two horns, but then, these are not placed at the side of one another, as in the bull, stag, &c.; they are situated one above the other, namely, one upon the nose, the other on the front. The cry of this animal resembles a little the grunting of a hog, and, according to others, the lowing of an ox that is enraged.

EIGHTH CLASS OF VIVIPAROUS.

We have marked the character of this class by short legs and palmated feet, comprehending under it, those animals which have the fore legs pressed against the body, and those behind changed into a broad tail; so that, at first sight, they seem to want legs. All the animals of this class frequent the northern regions of the ancient world and of the new; some the lakes and rivers, as beavers and otters; others the sea, as the sea-dogs, sea-bears, sea-lions, sea-horses, sea-cows, or in general, seals of all kinds. We shall begin with the most interesting.

THE BEAVER.

This animal is nearly the size of a sheep, with the head sharp, resembling that of a rat, the tail flat, and covered with scales, the fore legs very short, with feet with five toes, well separated; those behind longer, with palmated feet, that is, with the five toes connected by a membrane, for swimming; the hair soft and rich, of a blackish colour over the whole body, though there are some also completely white, and others spotted with white and brown. Plate XI. fig. 27. This animal lives on the brinks of rivers, lakes, ponds; feeds on tender wood, bark, leaves; and lives from fifteen to twenty years: the female produces every year a birth of two or three young.

The flesh of the beaver is eaten, and his tongue and his tail are particularly esteemed. This tail likewise merits notice, on account of its singular construction. It is a foot long, and nearly a half broad; but so thin as scarcely to be one inch in thickness, completely covered with scales like a fish, of which it has the taste, as also the whole hinder parts of the animal, which he keeps almost constantly in water: in fine, it does not terminate in a point, but abruptly.

Every person is acquainted with the value of beaver hair: a beaver hat, beaver stockings, beaver cloth, beaver gloves; it is used to express whatever is finest and dearest in all these articles. But the misfortune is, that beavers are too scarce, and of course their hair too dear, to have such a variety of articles fabricated from it; thus, the greater number of all these fine things only get the name of beaver added to them, by means of which they sell the higher, whilst they are manufactured of the hair of other animals mixed with silk, and but very little true beaver hair enters into the very finest of them.— The Indians use the fur of this animal for covering themselves with, and make knives and forks of its teeth; our artisans likewise use sometimes the skin of the beaver.

As the beavers are more numerous in the north of America than in any other quarter of the world, the English carry on the principal trade in whatever is procured from them. These animals do not frequent Europe, because it is too populous, and they find no opportunity there to exercise their wonderful talents: so that, instead of living in society, and building little villages together, the few that are found there, live dispersed and solitary, concealed in holes, whither they are even keenly pursued, on account of their destroying the dams and banks made in the water, by taking out the wood, which they eat, and on account of their working too much in the water sides. There are some of them in France, for instance, in Languedoc, upon the islands in the Rhone, in Italy, in Spain, and in several places of Germany. They are much more common in Asia, but it is America, and particularly Canada, that may be considered as their true native country. There, they assemble in thousands in different places; so that, to see their habitations one would take them for a village of savages, who do not indeed show so much ingenuity in the construction of their huts.

In reality, it can scarcely be credited, that an animal, a beast, and so weak too, could construct works so regular, so strong, so extensive and considerable, as are those of the beavers. To cut down trees, almost as thick as a man, on the banks of rivers, and to make them fall across the water: to drag them to the water, if unfortunately they should fall on the other side; then to get upon them to conduct them, as they float, to the place that has been fixed on for the establishment of the colony: to construct with these materials, large banks or dams, and to build cabins resembling the works of man: this is but an abridged detail of the talents and industry of the beaver in society; and all this, with no other instruments than his tail and his teeth.

As soon as the materials are collected on the spot, they begin their operations without loss of time. Some cut off the branches from the tree that is fallen, and divide it into stakes of equal length; then others dive to the bottom of the water to dig holes, into which the stakes are introduced; and after having made them pretty firm, some support them straight or inclined, according to the situation, whilst others interlace them with branches of trees. Others carry clay, moss, stones; of the first they make a cement, which serves for plastering their wattle-work with, whilst they fill it up with stones and earth, and calk it exactly with moss.

In this way, do these ingenious architects construct a dam or bank, sometimes a hundred feet long by twelve thick at the base, perpendicular on the side next the water, and sloping on the opposite side, the better to support the weight. As this great work is performed at the common expence, they afterwards separate into small companies, of ten, twelve, and even twenty, to build cabins, in proportion to their numbers. These cabins are erected even on the bank, of an oval figure, sometimes one, often two stories high; and when each cabin is finished, every pair of beavers, a male and female, provide for themselves a separate cell or apartment, in which they construct a soft bed of hay or moss, for receiving their young. When all their labours are finished, the commonwealth lives in tranquillity, and each individual enjoys the pleasures of a domestick life and repose, during the whole of the autumn and winter: provided they have been careful to lay in plenty of provisions, that is, tender wood, bark, leaves, which they put into water to keep them fresh.

As soon as spring has renewed the verdure, the whole family young and old, leave the water, and take to the woods, to enjoy themselves, and to feast on the tender young leaves, on the fresh juicy bark, and on the delicate buds just put forth. The beavers continue in the woods till autumn; on the first approach of winter, they return to their habitations, repair and re-establish their works, if they find them damaged, or construct new ones, if they find them destroyed altogether.

It is, as we already observed, by means of their teeth, their tail, and their feet, that beavers perform all their labours Their teeth, which are very sharp, serve them instead of a saw and a hatchet; their fore feet are a kind of hands, which they use sometimes as pick axes for digging the ground, sometimes for interlacing their wattles; with their hind ones they beat the clay and cement; and their tail is sometimes a shovel for carrying it, sometimes a trowel for laying it on their walls and their houses; for spreading and smoothing it. This tail likewise serves them for another purpose, to wit, to give the signal of retreat, in case of danger: for instance, if a beaver perceive an enemy, a hunter, or if he hear any thing that he suspects, he immediately strikes a blow with his tail on the surface of the water. At this sound, which is heard at a distance, all the rest dive and disappear; for, though their huts have always two openings or accesses, one from the water, and another from the land, they seldom make their escape by the latter, as the conformation of their legs is unfavourable for running. Hence they have the unsteady gait of a goose or a duck, so that their chief resource is in the water, since they swim and dive excellently, and make their escape wonderfully beneath the ice.

As we see the beaver almost constantly in water, we would be led to imagine that he lived on fishes, like so many others: but it is not the case: they may pass with impunity ever so often under his nose; he knows not to be the enemy of any thing that lives, upon land or in water. He does not care even for grain or fruit, and limits himself to the provisions we have already mentioned, unless it be when tamed, he may be accustomed by degrees, to eat every kind of vegetables that he gets. Butcher meat or flesh of whatever kind, he is never reconciled to. However, though extremely innocent, and far from intending harm, he defends himself the best way he can when attacked; which, indeed, is natural: he bites with his teeth; and uses the legs or arms of those who assault him, like the branches of trees on which he subsists in the fields.

It is true, a sort of tyrannical humour has been imputed to beavers, and they have been calumniated by a story equally strange and odious. It has been long believed that such as lived in society, hunted their vagrant and dispersed brethren, to reduce them to slavery, and use them sometimes like beasts of burden, for carrying wood, earth, stones, sometimes as a cart even, by making them lie down on their back, with their legs ſtraight up, and loading their belly with all these materials, to drag them afterwards by the tail to the spot for building on. All this has been found to be false; when they want stones or wood, they go decently in quest of them; or clay to make their mortar, they begin by digging on the spot where they build on, after having sprinkled a little water on it to soften it; and, if they do not meet with it in the vicinity of their buildings, they go in quest of it, and carry by mouthfuls as much as they have occasion for. One thing that might better be credited, was the precaution which they were said to take, of placing sentinels when they were at work to prevent surprise; this, however, has likewise been discovered to be false.

We muſt not forget a singularity which is peculiar to the beaver; that of having, under their tail, a pouch (others say four) filled with a kind of fat or oil, which serves to anoint their hair, and to make their fur impenetrable to water. This oil, which has a ſtrong disagreeable smell, is much sought after, and used by the apothecaries under the name of *Caſtoreum*. A large beaver will weigh fifty or sixty pounds.

THE OTTER.

THIS animal is rather larger than a water-dog; its head is round, furnished with whiskers, and resembles that of a cat; it has the ears small, the eyes large, the tail long, and garnished with bushy hair; the legs short; feet with five palmated toes; and the whole body covered with soft hair of a greyish brown colour. Like the beaver, it frequents the banks of rivers, and eats fishes, lobsters and frogs; and, in case of necessity, water-rats, the bark of trees, leaves, grass: it lives twelve or fifteen years; and the female produces every year four or five young. See Plate XI. fig. 3.

The otter, however, does not build like the beaver; it lodges in the first hole that it finds on the brink of the river, or beneath the roots of a tree. But it takes care to conceal its retreat, by establishing under ground, a communication with the water, and leaving only a small hole at the surface of the ground, to admit the air. It is hunted and eaten, though its flesh has only a disagreeable taste of fish; but its hair is very fine, and almost equal to that of the beaver: thus, it is employed for the same purposes.

When the otter wants to catch a fish, he begins to strike the water with his tail, in order to collect them: then he dives in an instant, seizes a couple, and comes to land to eat them. He may be called the fox of the ponds, for he commits the same havock there, that the fox does in the court-yards. It is chiefly at night that he enters these, and so great is his dexterity in this kind of hunting, that, in a short while, he is able to destroy the best stocked ponds: afterwards, when he finds no more fishes, he takes to the lobsters. Thus, it has been tried to tame the otter, to use him for taking water game, as we use a dog for land game; and it is alleged that, formerly, a number of these animals were trained to carry back to their masters the fish which they had been sent to take, particularly in Sweden, where the cooks employed them to their great convenience. This animal swims still better than the beaver, and particularly can remain longer* under water; besides, it likewise runs much better on land.

The sea-otter is larger than the river-otter, but its shape is nearly the same, and also its habits: for it inhabits, like it, the brinks of rivers; and the principal difference between the two species consists in this, that the sea-otter frequents the sea, by swimming down those rivers in which it has its hole; that it is only found in the coldest regions of Asia and of America; and that its hair is of a greyish black, and still finer and softer than that of the river-otter. In short, it produces only one young each year, and lives twenty or five-and-twenty years. It is besides a very weak, and particularly an extremely stupid animal; it is taken and killed at pleasure. Only it is observed to have a great deal of tenderness for its young: it holds them locked between its legs, and will suffer itself to be knocked down rather than part with them. Its method of learning them to swim is singular enough: for it lies down on its back, and carries them on its belly, holding them firm with its paws; and, in this position, allows itself to be carried down by the current till such time as the young can swim themselves.

THE SEA-DOG.

THIS animal, which likewise gets the name of sea-calf, phoca, is found in the north seas, and in the lakes of cold climates, both in America, and in Europe and Asia, as in Iceland, Greenland, Spitsbergen, Kamschatka, in the Baltick, on the coasts of Norway, of Holland, of England, of France, &c. They are likewise sometimes found in the large rivers, or in the lakes that communicate with these. The sea-dog is from four to eight feet long, and from two to four high. It has the head thick, long whiskers of strong hair, situate like those of the cat, with similar bristles on the nose and eyes, with some differences in different species. It has the eyes large, the ears pendulous, the tail short, the legs and feet of a shape altogether singular; in short, the whole body covered with short stiff hairs, sometimes of a greyish white, sometimes of a greyish black. Plate XI. fig. 20. This animal lives almost solely on fishes, and particularly on herrings: it lives twenty or five-and twenty years, and the female has every year a birth of two young.

---

* Bomare says just the reverse, and forms his opinion upon anatomical observations made on the structure of these animals. From these, it appears, he says, that, in the beaver, the *foramen ovale* is partly open, whilst, in the otter, it is intirely shut; whence it follows that, as the blood cannot pass in this last immediately from one ventricle to the other, without going through the lungs, the otter must be under the necessity of breathing more frequently than the beaver.

The peculiarity in the structure of the feet of this animal is such, that it cannot make use of them, and that it appears always crippled: it is obliged to crawl like a worm, or creep with its fore feet, as if its hind ones were broken. Properly ſpeaking it has no legs, but only something resembling them: its fore paws are a little longer than those behind, twisted, bent backwards, furnished with five toes, with large sharp nails, almost similar to those of a goose, or rather those of a mole. Those behind are also twisted, and armed with nails, but so much bent backwards, that they can scarcely be distinguished from its forked tail, and likewise palmated for swimming, in short, its whole apparatus of legs is so singular, that, to see only a drawing of the animal, one would imagine that it had none, and in reality, what represents them, has been taken for a parcel of mutilated fins, at least the fore ones, and those behind for a part of the tail.

One would likewise imagine, that an animal so little fitted for walking, upon ice, on the land, or on shore, could only live in the sea: notwithstanding, it remains out of the water, upon ice or land, the greater part of its time, and goes into water only in quest of its prey. The female brings forth on land, and even rears her young there. By means of its crooked nails, it can clamber to the top of rocks, and of mountains of ice, where it reposes and sleeps: when it wishes to descend, it throws itself into the water from the top of these heights, or allows itself to fall down. What is still more difficult to conceive, though still true however, is, that notwithstanding its crippleness, it will yet leap and crawl so nimbly upon the ice, that the most alert Greenlanders have the utmost difficulty in catching it.

These people however derive great advantage from them; they eat the flesh and the fat, and clothe themselves with the skin. The Esquimaux do the same, and also other savage nations of these countries. Its flesh is red, tender, juicy, fat, and is eaten both fresh and smoked. They likewise eat its lard, which is two or three fingers thick, and they burn part of it, instead of oil, in their lamps. In short, they use its skin for making clothes, under-waistcoats, bonnets, breeches, boots, shoes, straps, cords, and even for making small canoes of, or at least for lining them within and without; these people likewise use them for covering their summer huts with, and sell a number of them to the Europeans, who, in their turn, use them for covering trunks and boxes, and for mounting caps and snuff-boxes with. Seals are such a necessary resource to the indigent natives of the north, that if they should be deprived of them, they would infallibly perish of hunger and cold.

These useful animals are likewise extremely multiplied. Besides the many thousands killed by the Icelanders, Greenlanders, the Esquimaux, and the natives of Kamschatka: what numbers are likewise killed by the Norwegians, the Rusians, the Swedes, the Danes, the Dutch, the Hamburgers, the English, and other nations that practise the whale fishing, and which, when they do not meet with whales, avenge themselves on the tribe of seals, by making a horrid slaughter of these stupid defenceless animals. We may compute, that, at least, fifty thousand of them are killed annually. Most commonly they surprise them asleep on the ice, and have time to kill hundreds of them before the rest awake, so soundly they sleep, without care or inquietude, or without the precaution of securing themselves by stationing sentinels. However they bite cruelly, when they get a hold of a person's legs or arms; but they are not suffered to approach so near, so that they can only get at the sticks, which they frequently cut in two, though as thick as one's arm. They make a hideous noise, the large ones barking like dogs, and the young ones mewing like cats. A few strokes on the nose are sufficient to kill them, when they are instantly flead, their lard cut into pieces, and packed into tuns, which are carried away to be melted, and made into fish oil. They are so tenacious of life, that frequently after they are skinned, or nearly so, or have their head broken, they still struggle, make considerable leaps, and attempt to bite people.

The European nations, already named, send to sea every year, several vessels to this fishery, and as the stick is the chief weapon which they use, they are called in their languages seal-fellers. The oil that is extracted from these animals, has the taste and qualities of old olive oil, but that which is obtained from young ones, is said to have neither a strong smell nor taste, so that it is equally good with fresh olive oil.

THE SEA-BEAR.

We already said a few words about this species of seal, under the article of land-bear, that it might not be confounded with the one named bear of the Frozen Sea, or sometimes simply sea-bear. The seal called sea-bear is larger than the sea-dog, but resembles this much, in shape; it has the head of a bear, the ears short, the tail likewise short, the paws also, but armed with five nail-shaped toes, and palmated half way; it has the hair short, stiff, and of a greyish black over the whole body. It subsists on grass and fishes; lives near fifty years, and inhabits particularly the sea of Kamschatka, between Asia and America. The female produces one young every year, seldom more. This seal runs very well, and makes head against every enemy, even against man himself, whether he goes in quest of him in boats, or goes to hunt him at land armed with his musket. When approached too near, he darts upon men and throws them down with ease. In Kamschatka, however, the inhabitants know how to kill them with stones, and in other ways, in order to eat their flesh and to drink their blood.

A single male has generally a seraglio of twenty, thirty, or fifty females, of which he is extremely jealous, and keeps his whole progeny united to the third generation All these families live in the greatest harmony, and mutually defend one another till death. Besides, sea-bears in general run to one anothers assistance, when any of them happen to be attacked.

THE SEA-LION.

This seal resembles very much the sea-calf; but is much larger, and is from twelve to twenty feet long, or thereabouts, of the height and thickness of a land-lion, which he likewise somewhat resembles in the shape of his head, whence he has obtained his name. His native abode is the Pacific Ocean, though he be also found much farther, and even in the Southern Sea. He sometimes frequents the land, and sometimes the water: his hair is short, and of a bright brown; he feeds upon fishes and grass, and lives to the age of fifty. The female has each year a birth of two young.

When he has acquired his full growth, he weighs seventeen or eighteen hundred weight, before he be skinned. His flesh, which is covered with a layer of fat a foot thick, from which is obtained eighty or a hundred pints of excellent oil, is used for food: and his skin furnishes strong boots, shoes, &c.

Sea-lions generally come to sleep upon the islands and sand banks; but one constantly remains sentinel; which, at the sight of an enemy, raises a frightful cry, sometimes like the grunting

ing of a hog, at other times like the neighing of a horse; so that they are not killed with such ease or safety as the sea-dogs, but must be attacked at a distance with arrows or muskets. They are not vitious, however, and never attack any person, unless they be wounded, or have their young carried off; on these occasions, they spare nothing that they meet with, and tear every thing in pieces with their terrible teeth. They are neither expert runners nor swimmers; the females carry their young on their backs in the water, till such time as they are able to swim; and to force them to this the earlier, the male frequently throws them into the water himself, and even repeats this when they fail the first time.

THE WALRUS *.

THIS animal exceeds the largest ox in size, but has most resemblance to the sea-dog of all the other seals. Its head is a large round mass, with a large ox's mouth, armed in the upper jaw with two long tusks, bent inwards, as thick as one's arm, almost similar to those of the elephant, extremely hard, and of the most exquisite white within, preferable even to ivory for a number of little articles. The tail of the walrus is short, and his feet resemble those of the sea-dog; his two nostrils serve not only for breathing, but also for throwing large quantities of

---

* The animal described here under this name, is the sea-cow of *Buffon* and *Bomare*, who rank it among the cetaceous class: and it is their *lamantin* that is described in the next article under the name of sea-cow. The reader, may make his choice.

of water to a great height, and with noise. His skin is a finger's breadth thick, full of wrinkles and with a few scattered hairs of a reddish brown: he has also round his mouth whiskers formed of bristles, as thick as a stalk of corn, which, together with his two large tusks, contribute not a little to give him a frightful aspect. See Plate XI. fig. 19. He inhabits the Frozen Ocean, near Spitsbergen, Greenland, and Hudson's Bay: he lows like an ox, feeds upon marine plants and shell-fishes, and lives at most fifty years. The female has every year a birth of two young.

The walrus is a bold animal, and, notwithstanding his unweildy appearance, defends himself vigorously against every enemy, man or beast. When attacked on the ice, he is not safe, though he may have received a mortal wound, because that does not prevent him breaking in pieces the legs of those whom he can get at: if he be attacked at sea in a boat, he is able to make large holes in it, to tear away planks with his teeth, or to sink the boat; so much the easier too as one assists another, and they unite for their mutual defence. When surprised, they can only be killed with spears; they sleep in troops upon the ice, but they are careful to place sentinels; and we cannot do with them as with the sea-dogs.

The long tusks of the walrus serve either for defending itself, or for fixing by, to assist it in dragging its unwieldy mass up rocks and pieces of ice, or for seeking out and seizing shell-fishes, on which it subsists, muscles, sea-snails, &c., which it digs up from the mud, by means of these two teeth. One of these teeth generally weighs from five to eight pounds, and some are even found ten or twelve pounds weight. But as these animals are engaged in frequent and dreadful battles with one another, it seldom happens that any of them have both their teeth intire; some have only one, others have none, and some have only the stumps; for these useful members have not the privilege of growing again like the claws of lobsters. Formerly walruses were hunted for their ivory alone; but at present they are likewise hunted for the sake of their skin, for their flesh, and their oil.

THE SEA-COW.

THIS animal likewise gets the name of manati, it resembles the whales more than the seals: for its fore legs which are scarcely two feet long, and serve it for dragging its heavy body, have almost the appearance of fins, and its hind ones, the look of the tail of a whale. It is larger than the other seals, with the head small, long, and almost squared, with an ox's mouth, but without teeth, save only two long flat bones, one above and another below, and two small orifices without external ears. Its skin is black and very thick, resembling almost the bark of an old oak, and so hard as scarcely to be cut with a hatchet. It frequents the seas of Kamschatka, and farther towards South America; it feeds on sea-plants, and lives above fifty years. The female produces every year one young.

The manati swims frequently on its back, holding its young between its legs; when swimming on its belly, the half of its back appears above the surface, and crows and other birds perch on it, to extract the lice and other insects that nestle in the wrinkles and chinks of its skin. It is killed itself by means of large iron harpoons; after having received its mortal wound with one of these, ten men, at least, are necessary to drag it ashore: for it is a mass of several thousand weight When once it is hauled ashore, by means of the rope, that is constantly fixed to the harpoon, it is dispatched with spears and hatchets.

It flesh is a little hard, but when well boiled, it has almost the taste of boiled beef: an oil is extracted from its fat, and its skin is used for different purposes.

NINTH CLASS OF VIVIPAROUS.

THE WHALES.

We distinguish, by this name, a class of animals, which, though destitute of legs, and which remain constantly in the water, and have even much resemblance to fishes, are not however real fishes; since they have the blood red and warm, are obliged to come frequently to the surface to breathe, and have lungs. Instead of cartileges, they have bones like those of oxen; their fins are differently made from those of other fishes, being composed of bones articulated like the bones of the fingers, and covered with skin and flesh, so that they might be called hands. The same structure too, obtains in the tail of these animals; then, they are also viviparous, have breasts, milk, and suckle their young.

There are many species of these animals; some have teeth; and others want them; and these last are furnished with strong sharp bristles called barbs,

barbs; others have in the fore part of the mouth a kind of horn of an ossious substance. These prodigious animals live on fishes, small and great, and sea insects; they get different names according to their species, and frequent solely the abysses of the Frozen Ocean, or, at least, the seas bordering on this.

THE GREENLAND WHALE.

THIS is not only the largest of the cetacious animals, but even the largest of all known animals; for the elephant only exceeds in size other terrestrial animals, but not the whale. It is alleged, however, that there exists another sea animal still larger than the whale, which has got the name of *kraken*, of which we shall speak afterwards, and which is said to frequent the northern seas, between Iceland and Norway; but any thing which we have been told concerning it has much of a fabulous appearance.

The whales that are caught at present are only from sixty to eighty feet long, and forty in circumference; their size exceeds that of a hundred oxen taken together. But formerly, that is, when fewer of them were killed, and, of course, they had more time to acquire their full growth, much larger ones were taken; some a hundred feet long, or a hundred and twenty, and a hundred and forty. It is alleged even, after the antient naturalist Pliny, that in former ages, some were taken that were four hundred, or still more, from eight to nine hundred feet long, with a proportional thickness; but this seems extremely improbable.

The large whales of Greenland and of Spitsbergen (two countries in the neighbourhood of which they are commonly found), have the head of such a prodigious size, as to form at least a third of the whole body. In the middle of this head are situated the two *fistulæ*, or spout holes, thro' which it throws out the water that it swallows with its prey, to such a height, that this singular *jet d'eau* may be seen to a great distance, and with a noise that is heard two or three leagues off. These *jets* are as thick as one's arm when they issue from the orifice, and rise so high, that when two or three whales are together, one would take them at a distance for the chimnies of some village vomiting forth their smoke.

The aperture of the mouth of this animal forms nearly the figure of the letter S laid down, ∽, and this aperture is so large that a person might enter it in a little canoe, move about in it, cut off his tongue and his barbs, &c.

P. But that, dear Sir, must be when the animal is dead, must it not? for otherwise it would crush and swallow both the man and boat.

M. Undoubtedly, one would not think of entering this, while the monster was alive; or, if he returned, he might think himself extremely lucky. However, a man would run no risk of being swallowed, still less a boat; for this animal, notwithstanding his size, has not a throat above four fingers wide. That appears almost incredible to you, and yet it is a fact; thus, the whale can only swallow sea insects and small herrings, though you may have heard it said that a person was once swallowed by a whale, and vomited at the end of three days. . . . . . .

P. Ah! that was the prophet Jonas, was it not? but is it not true then?

M. The whole depends upon the name of the sea animal that swallowed him; for there are others that have the throat large enough for that, as we shall see by and by.

But if the adventurous fisher, who should be hardy enough to take a sail in his canoe under the vaulted palate of a live whale, among his forest of barbs, escaped swallowing, he would not fare much better. For I must inform you that these barbs are placed all round the upper jaw of the whale, to the number of seven or eight hundred, nearly like the pipes of an organ, so that below they are received into a kind of cavities formed in the under jaw. It is with these barbs, which serve him instead of teeth, and which are of a substance nearly as hard as horn, that the whale catches the sea insects, on which he subsists, by hundreds, in the slime in which they are immersed; and if a man was to be caught in the same kind of snare, he would be mangled, crushed, and would suffer a much more miserable death than if he had been simply swallowed and suffocated in the stomach of the monster.

The structure of the jaws of the whale is truly curious. The upper mandible of this animal is about twenty feet long, and is so strong and thick, that it might be made into door posts, or pieces of sledges: the barbs that are fixed in it, to the number of three hundred and fifty on each side, are some of them large, others small, and arranged in such a way, that the small form a row on the exterior margin of the jaw, and another on the interior margin, between which is placed a row of the large barbs. They have the shape of a scythe; at their base, or, at their insertion into the jaw, they are a foot broad, and six inches thick, in large whales; from this they diminish and taper gradually to the extremity.

They are garniſhed on both sides with long hairs, which, at the same time that they prevent the tongue from being wounded, likewise serve the better to retain and secure the small animals on which it subsists. The under jaw, which furnishes to all these scythes the sheaths in which they are lodged, has no barbs. They are these barbs that are used under the name of whalebone, after being split into thin slices of different lengths, to make canes, umbrellas, stays, hoops. The Esquimaux use them as posts for their summer huts; they likewise make them into canoes, which they cover within and without with the skins of sea-dogs. The ribs and bones of the whale serve for making chains, benches, and tables; for they are as thick as the beams or rafters in our houses.

The eyes of the whale are furnished with eyelids, and are not larger than those of our oxen; they are placed at the two extremities of the mouth, and are ten or twelve feet distant from one another. Just behind the eyes are placed the ears, which are only the apertures of two canals of four feet deep, at the bottom of which is placed the tympanum. Beneath the eyes are situated the two fins or hands of the whale, which it uses less for swimming than for grasping, and which are from ten to eighteen feet long, by nearly the same breadth.

The chief instrument that serves to move this animal, with all that velocity of which it is capable, is its tail, which is from thirty to forty feet broad, bent above at the two extremities, and situated horizontally; whilst in fishes, the plain of the tail lies in a perpendicular direction. So much strength has the whale in this part, that, with a stroke of its tail, it will break in pieces a pretty large boat.

But these animals, from which mankind derives so many advantages are not very numerous; and the number is continually decreasing, from so many of them being taken, without allowing them time to arrive at their full size, or even to propagate. The female produces every year but one young, or, at most, two; these young ones, when brought forth, are as large as an ox, and are twenty or five and twenty feet long. Thus, whilst nations, both civilized and savage, become every day more anxious about the whale fishery, there is reason to fear that the species may at last be destroyed, as we see already that they no longer acquire the full dimensions allotted them by nature.

P. But, dear Sir, what method is taken to catch these large animals that break vessels in pieces, that . . . . . .

M. Have you a great inclination to know how the whale fishery is conducted? in that case, the best way, is to go there in person, and you will see how it is managed. Well! have you courage, think you?

It is a little distant from this, in the Frozen Ocean, and it is a little cold in that quarter; now the question is, whether you have resolution to go to be benumbed with cold, at the extremity of the world, with sailors, who swear and drink brandy like water. You must likewise leave your sisters, and your cousins; for I suspect they will not fancy to follow you to the icy mountains of Greenland.

P. Oh! no matter for that. We shall relate every thing to them when we return. As for us here, we are all ready.

M. All ready? and your provisions? and your stores? in particular, we must not forget good furs. Come, since you are men of spirit, the *Northern Bear* is going to sail for Greenland in a few hours. This is the firſt day of May; we shall get there in June, if we wish to return in August or September, with a good cargo of lard, oil, barbs, &c. See, here is the vessel (Plate XI. fig. 13.); here one of the boats (fig. 14.); we shall have half a dozen of the same kind, with forty or fifty good fishers, who have already made the voyage more than once, and who understand the business. As soon as we have arrived, and perceived a whale, you will see six or ſeven get into each boat, attack the animal, and soon kill it.

P. But are they not afraid?

M. And for what? the poor whales, notwithstanding their enormous size, are neither furious nor malicious; on the contrary, they are as timid as sheep, and make their escape, chilled with fear, at the sight of man. You shall see how near his nose and his barbs our sailors will row, whilst they aim a good blow with their harpoon. Come, courage! there's a good breeze, we shall soon be there.

P. Ah, heavens! but we shall see nothing but ice, and sky, and sea, and sea-dogs!

M. Already behold us in the Frozen Ocean; this need not surprise you. These are the mountains of ice (Plate XI. fig. 21.), and the plains of ice, behind which we shall probably find what we are in quest of. We have only to wrap ourselves in our cloaks and our furs, and, in particular, take care that our feet or our hands, or, still more, our ears and the tip of our nose do not freeze; for the cold will increase in proportion as we advance among the ice.

P. What a number of vessels! Do they all come to catch whales?

M. Did you expect that we should be alone on the voyage?

P. But there must be a number of whales for so many?

M. Every one must catch as he can: it is more than probable that several of them will not catch any, and will be very well satisfied if they can get a few sea-calves. It will even be fortunate if none of them perish before they have so much as killed one! These misfortunes are but too frequent every year; but that hinders not every year several hundreds of vessels of all nations from coming to cruise in the Frozen Sea; where, in fact, in a space of thirty or forty miles, or from forty-five to sixty leagues, there are taken every year about eighteen hundred or two thousand whales. . . . . .

P. Ah!—there is one! but I have lost sight of it already—whither is it gone?

M. It has dived, because it was wounded; did you not observe the man who struck it with a harpoon in the nape of the neck, do you see how they let go the rope to follow it, and not to lose it? We shall soon see it return either dead or near it. . . . . . See! there it is on that side! see how the fishermen draw the rope, and assault the animal with violent blows with a hatchet. See Plate XI. fig. 14. and 17.!

P. Goodness! one is almost afraid to see how that business is carried on!

M. Come, we have made a voyage to the Frozen Sea; we have seen pieces of ice ten or twenty feet high, mountains and plains of ice, an immense number of seals, walruses, white bears, several whales; this is enough for once. Let us return home with our booty, relate at our ease the history of the fishing, which we have just witnessed. Let us begin.

You understand how a whale is perceived at a distance; for it is a mass like a swimming mountain, that raises and drives the waves before it, that breathes with a great noise, that sometimes utters dreadful lowings, and, in particular, that throws to a great height, and with much noise, a quantity of water through the holes on its head; in a word, one would say that the storm and tempest were walking on the surface of the sea. As soon as one is perceived, seven or eight men throw themselves into a boat, and make for it, to try to pierce its body with a sharp iron instrument called a harpoon. This kind of javelin is not above a foot long, three square, and with a wooden haft, to which is fixed a rope of four or five hundred fathoms, and about the thickness of a person's finger; for, as the whale dives immediately on being wounded, and sometimes does not appear again for a great distance, they let out the rope as they pursue him, which lasts only for two minutes. The person that throws the harpoon is called the harpooner, and the other boats belonging to the vessel are likewise to assist in case of need.

If the whale be not mortally wounded, he struggles frequently for an hour, with fury and violence, without there being any possibility of approaching so near him as to strike another harpoon into him. Frequently he disengages himself from the harpoon, goes off, and gives the fishermen the slip, after having given them infinite fatigue, and several times missed crushing them.

At other times he gets beneath a board of ice, of which they cannot see the extremity, and as they are neither capable of pursuing him thither, nor of drawing him out, the unfortunate fishermen are under the necessity to endeavour to save their rope, otherwise they would have a double loss; for these ropes cost always about a hundred crowns.

On the contrary, if the wound be mortal, they strike him with a second harpoon, sometimes even with a third, if necessary, near the fins, and afterwards dispatch him with spears. Then a person would imagine himself in the middle of a sea of blood, because what the animal sheds, reddens the waters all round the ships, as far as the eye can reach. As soon as he is completely dead, he swims above, with the belly uppermost, like a dead fish: the boat then approaches, as near as possible, and two holes are made through the fat and the ſkin, to introduce a cord through, to tie him to the vessel, as you see in Plate XI. fig. 14. and 15.

Then a shout of joy is heard through the whole crew, who, in celebration of the victory, swallow a good quantity of brandy. After taking a good dose of this, they surround the animal with their boats; and each person, with a hatchet in his hand, begins to slice the lard, on the right and on the left: two men enter his mouth, and cut out his tongue and his barbs; others do the same with his tail and his fins, which are cut into pieces for boiling and making glue of. Some people, such as the Greenlanders, and many others, eat the tail, and also the flesh of the whale, though it be hard and dry, of a dull red colour, and of a bad enough taste. Some likewise get upon the whale; and these, to prevent themselves from slipping and falling into the sea, wear boots or shoes, with the soles furnished with sprigs and cramp-irons. The fat is cut into large square pieces, which are thrown into the vessel with the skin; and after this operation is finished, which does not last above four hours, they retire to a good firm board of ice, where they finish the business. This is done by taking out the lard from the vessel; by taking off the skin, which is thrown away; by cutting the lard into small pieces, and packing it up in tuns. When a whale is tolerably large, they always obtain from it eighty or ninety large tuns of fine fat, from which they procure a vast quantity of oil. Some fishers make the oil on board their vessels, and even before leaving the place; this is far the best: when made in the other way, it has always a very bad smell, as is done by the Dutch, and some others, who are too much afraid of fire aboard their ships.

If a vessel take two whales, which afford about a hundred and eighty tuns of fat, two tongues, and from one thousand to fourteen hundred barbs, which are of equal value with the fat, then the fishing has been successful, and yields considerable profit. During the voyage, the oil runs through the tuns, as clear as water, and is collected with care, because it is much better and dearer than that which is obtained by means of fire. As soon as the ship arrives at port, the fat is landed, and, without loss of time, is melted in copper or earthen vessels. The oil that is procured, is used by a great number of artisans, as tanners and curriers, for dressing hides. It is likewise burned in lamps; and in some countries it is eaten, as in Greenland, Lapland, &c.

But man is not the only enemy of the whale; it has many others, such as the sword-fish, and several other animals of different sizes, that pursue and kill it, or compel it to take shelter under the ice, at the risk of being suffocated, if it does not come out again in a few minutes, or find means to break the ice above its head, in order to breathe; which it can always accomplish, when the board of ice is not above two or three feet thick.

Such is the history of the large Greenland whale, that you see represented in Plate XI. fig. 16. but there are several other species; as the physalus, the cachalot, the round-headed cachalot, the narwhal, the dolphin, the sea-hog, or porpesse, and the orca or grampus.

THE PHYSALUS OR FIN-FISH.

THIS animal is also very long, and even longer than the common whale, but it is not above a third or a fourth of its thickness: it is likewise infinitely more agile, more furious, more dangerous than the former, particularly on account of the dreadful blows that it gives with its tail. Hence the Europeans never meddle with it; and so much the less too, as its fat is but in small quantity, as well as of a bad quality, and its barbs short and knotty. But the Greenlanders find its flesh excellent, and esteem it highly. It is taken in the same manner as the large whale, namely, by means of a harpoon. It has likewise barbs, like the whale, instead of teeth, and resembles it in every other respect, save only that on the back it has a kind of fin, about four feet long, in a perpendicular situation, and in the direction of its tail. The size of its throat does not allow it to swallow any thing larger than herrings; thus it is constantly found pursuing the immense multitudes of those small fishes that wander in the seas. Plate XI. fig. 17.

THE CACHALOT.

THE cachalot, or, as others call it, cachelot, is nearly of the same strength with the common whale, but it differs widely in its conformation, its food and place of abode. Its head is of an extraordinary size, being almost the half length of its whole body, and the muzzle as it were lopped off; its eyes are small, and it has a spout-hole above. Upon the back, it has two fins four feet long; it has the mouth small, but large enough, however, to swallow an ox without its touching the sides. The under jaw is furnished with from thirty to forty teeth, as thick as one's arm, and a foot long, that are lodged in holes in the upper jaw, of a substance as hard as horn; with these he catches pretty large fishes, on which he subsists, and bruises them a little before he takes them down into his monstrous maw. Plate XI. fig. 18.

The cachalot commonly inhabits the northern seas, but he sometimes strays, it is said, into the other seas of Europe, and even into the mouths of large rivers; whence it has been thought that he might be found in the Mediterranean Sea, and that it was this animal that must have swallowed the prophet Jonas, without using its teeth, from respect, and vomited him again safe and sound at the end of three days; since the smallness of its throat, and its constant residence in the frozen seas, does not permit the whale to have had this honour. It is true, that others wish to confer this honour on the shark, a kind of amphibious animal of twenty or twenty-four feet long, whose throat is capacious enough to swallow a man easily, and that is found in great numbers in the Mediterranean. All this is very doubtful, as we already observed, in speaking of amphibious animals.

The most singular part of the cachalot is the head, and particularly the extraordinary size of its brain, which will fill a dozen tuns, and sometimes more. In reality, its whole cranium is full of an oily matter, that curdles immediately on being exposed to the air, and that is of the most consequence of any thing that pertains to the cachalot. Not that its lard is not good likewise, but it is in small quantity. This oil, obtained from the brain of the cachalot, is used in pharmacy, and at the toilet, under the name of fine whale oil*.

The cotodon appears to be a small species of cachalot, for there are different kinds of this animal; its colour, which is of a yellowish white, has procured it in German the name of white-fish. It is not above twenty-four or thirty feet long, and resembles likewise the whale, except in its head and its teeth; for it has some in both jaws, and its head, instead of being sharp, is obtuse,

---

* Bomare, in his dictionary, gives rather a different explanation of this.

obtuse. It feeds upon small fishes, and likewise inhabits the northern seas. Its fat is not above half a foot thick, and so much can scarcely be obtained from one as to fill four tuns: but, on the other hand, its flesh, which is red, and has almost the taste of beef, is eaten.

THE NARWHAL.

This is the sea unicorn, which is about twenty feet long, and ten or twelve thick. Its skin is black and smooth, and its head uncommonly small, so that at first one would take it for a fish wanting a head. Its mouth is small, and has neither teeth nor barbs; for it bruises its prey with its tongue: but what particularises this animal, and has procured it the name of unicorn, or animal with one horn, are the two which it carries, and which. . . .

P. But if it has two, dear Sir. . . . . We have always heard it said, that unicorns had only one in the middle of the forehead. . . . .

M. And as the narwhal has two that are not situate in the forehead, you think it wrong named, do you not? Well, I am perfectly of your opinion; and think that this species of whale, ought to have been named bicorn, instead of unicorn, or, still better, bident, or two toothed. For, besides, that these two horns do not proceed from the ordinary seat of horns, but from the mouth, they are likewise not of the nature of horns, but precisely of the same with ivory or teeth, very hard and very white: thus, though the tusks of the elephant be situate a little different from those of the narwhal, they are equally well intitled to the name of horns with the latter. They proceed from the upper jaw, and are directed straight forward, forming a kind of fork; they are as thick as a person's arm, from eight to fourteen feet long, hollow within, and twisted in a spiral. But that which has perhaps caused the false denomination of unicorn, is, that one of these tusks is not only shorter generally, and thinner than the other, but is likewise a wanting altogether in many individuals. These teeth, which are used like ivory, serve the animal as well for searching its food at the bottom of the sea, as for defending itself against its enemies, because they are extremely strong. The narwhal, with these weapons, can pierce the belly of a whale, kill him, and afterwards eat his tongue; with these, he likewise runs large fishes and seals through the body, and also uses them for making a hole in the ice, for the purpose of breathing. The name of narwhal has been given it by the Greenlanders and Icelanders.

Formerly, and even lately, the tusks of the narwhal, passed for the horns of the pretended unicorn, a land animal and a quadrupede; which made them be considered and valued as precious rarities. Now, we know the animal to which they belong, and have discovered, that no quadrupede exists with one horn. Notwithstanding, the tusks of the narwhal are still pretty rare in Europe; whilst, in Greenland, the inhabitants use them, instead of wood, for rafters to their houses, so common are they in that country.

The narwhal is difficult to take, on account of its surprising agility; but when a great troop of them are together, and if they be attacked then, they get so locked together, and embarrassed with their tusks, that they are unable to dive:

then they may be killed. Nevertheless, they are not sought much after, because they have but little fat.

THE PORPESSE.

THIS animal is called by the French marsouin, which is a corruption from a German word, signifying sea-hog. It is not above seven or eight feet long, and frequents almost all the seas of Europe, particularly the Baltick and North Sea. It is of a blackish brown on the back, and white on the belly, like the rest of the cetaceous class. It has a fin on the back situate near the tail, and of the shape of a half-moon, a long muzzle, and shaped nearly like the snout of a hog, and the two jaws furnished with small sharp teeth.

This animal is eagerly sought after by fishermen, because it has a great deal of good fat, and its flesh is well flavoured. On the approach of a storm, porpesses assemble in great numbers round ships at sea, no doubt from their fear of being dashed against the rocks by the violence of the waves.

THE DOLPHIN.

THIS likewise is a species of whale, but a little larger than the porpesse, which it resembles, both in shape and in dispositions, save only in its head, which is longer and more sharp: whence we must conclude, that this animal has little or no resemblance to the figures on signs, or the drawings in heraldry, that are given under its name. It was famous among the antients, for its pretended taste for musick, and for its attachment to man: two qualities which served to adorn a fabulous story. It subsists upon small fishes and sea insects, and is possessed of extreme agility in water, a quality that has procured it the name of the sea arrow, or some similar name in foreign languages.

THE GRAMPUS.

This is a species of whale, which, being found in the North Sea near the coasts of Norway, and particularly towards the North Cape, has been called *whale* of the *North Cape*. It got the name of *orca* among the antients, from the thickness and rotundity of its shape. It is twenty two or twenty four feet long, and eight or ten feet thick; Thus its size is not comparable to that of the great whale; but in other respects it resembles him almost completely, excepting that it has the jaws furnished with teeth. It feeds, however, only upon herrings, which it throws into a vortex with its tail, that it may afterwards take them at its ease.

TENTH CLASS OF VIVIPAROUS.

We shall observe in this class a singular species of animals, and, besides, but little known, namely that of the sloth, so named from their extreme slowness and almost constant drowsiness. They have in general the body thick and hairy, the feet with two, three, four or five toes, and in part want teeth: such are the sloth and the ant-eater.

THE

THE SLOTH.

This animal is so stupid, so indolent, so inactive, that it has been named, by way of eminence, the sloth. It gets the name of *ahi*, or *ai*, from its cry, which seems to express these two syllables. In reality nothing can equal the extreme stupidity of this animal; for, at least, of all other known animals, large and small, there is not a single one, that does not either endeavour to make its escape, or to defend itself in the best manner it can against its enemy; but the sloth attempts nothing of this kind. It may be struck with stones or a stick; it may be pricked, pierced, trampled, tossed about, without its shewing the least symptom of anger or resentment, or the smallest inclination to make its escape. It does not consider whether it be in danger, or if some enemy be near it; if it do perceive one, it does not make more haste; it does not make a single step more, and will suffer itself to be taken or killed at the foot of a tree, without having resolution to clamber up.

P. Truly, that is more singular than all the rest!

M. Guess, if you can, the quickness of its pace.

P. Perhaps, nearly that of a snail: for it is not easy to conceive any thing slower.

M. Pouh! the snail is an eagle in comparison of the sloth; in a word, there is not a snail, either with a shell or without one, that is not capable of mounting upon a rock or shelve, in the space of a few minutes; now, a sloth will take hours to accomplish the same task. It will scarcely, in a whole day, make its way through a space of fifty steps, and, to get up a tree, a situation which it prefers to all others, not less than two or three days efforts are necessary. And when roosted upon one branch, what labour, what misery, how long time to reach another, and during this period, it does not taste food; for it does not think of quitting the first branch till after the other be completely plundered. As to drink, at least, it is not to be pitied, since it is never thirsty; thus it is fortunate for it, that, with its slowness and little taste for drink, it can subsist without nourishment for several days, and even weeks.

P. But has it not four legs like other beasts?

M. It has indeed four legs, but so ill constructed, that they cannot serve it for running with; at most they only serve for such a progressive movement as I have mentioned to you. But, on the other hand, its claws are so strong and powerful, that, when it gets time to seize any thing with them, there is no possibility of making it quit its hold; this enables it to suspend itself to the branches of trees, and even sleep in that posture, with its back downwards. It is about the size of a fox; it has the head small, the visage somewhat resembling that of an ape, a mournful and dejected air, and is constantly repeating its cry of *ahi*, in a plaintive and dismal tone. Its eyes are small, its ears pendulous, its tail scarcely perceptible, its toes connected, though the nails be separate, the hair of a greyish brown, clotted on the body, and resembling withered grass. The female brings forth every year, three or four young, in a small hole at the foot of a tree. Its flesh is eaten, and is not bad: the animal exists, ten or fifteen years. When this creature has robbed a tree of all its leaves, it does not immediately ſet off in quest of another ; but it seems to take time for reflection and deliberation ; one would imagine that it considered for two or three days whether it should quit one in order to ascend another. But, during its meditations, if it happen to be pressed with hunger before it has got every thing weighed, it takes its resolution at once, and instead of descending from its dear tree in the same way as it ascended, it suffers itself to fall down at once, like an unwieldy mass as it is, and does not so much as perceive the shock. It then begins its journey at its leisure, and arrives gently at another neighbouring abode ; for with it, changing trees is like changing quarters or lodgings, since it remains three or four months on the same tree, without once coming down. It will, at least, take a fortnight to perform its journey, during which time it eats nothing, so that, by the time it arrives at the branches of a new tree, the miserable creature is perfectly gone, and is nothing but skin and bone : it then begins to eat anew, and there it remains for one quarter of a year without revisiting the ground. It is a native of South America, and particularly of Brasil. You will find two represented in figures 1. and 2. of Plate IX.

THE TAMANDUA OR ANT-EATER.

THIS animal, of which we have already taken some notice under the article *ants*, whose declared enemy it is, is likewise classed among the sloths. There are four species of them, small, middle-sized, middle-sized, large, and with long hair: they are likewise distinguished by the number of toes; for some have two, others three, and some four. The smallest are nearly like a squirrel, and the largest like a butcher's dog. All of them have the head small, the muzzle long and sharp, the tail long, the legs short, the feet with two, three, or four toes, furnished with very long nails, the hair white or brown, the tongue very long, and covered with a viscous matter, but no teeth.

They subsist on ants, and though not so stupid as the sloths, properly so called, though they can even run a little, they are intitled to be classed with them. Tamandua is the name given to this animal in Brasil, where its flesh is likewise eaten.

The small ant-eater (Plate II. fig. 20.), which is not larger than a squirrel, has the hair long, soft, and of a bright brown, two toes on the fore feet, and four on those behind, all hooked, for the purpose of searching in ant hillocks, as well as for clambering up trees, and for supporting themselves there. It is not very alert, but still there is no comparison between its speed and that of the sloth, and it does not suffer itself to be taken with so much indifference; not, however, but that it is easy enough to come up with and to catch it.

As to the large ant-eater, it has the muzzle of a prodigious length, and almost similar to the trunk of an elephant, four hooked claws on the feet, the hair black and white. Its size is nearly that of a common butcher's dog. See Plate II. fig. 17.

The manner which all of them take to catch ants, is to cram their long muzzle into ant hillocks, then thrust out their tongue, that the ants may stick in the slime with which it is constantly covered. Afterwards, when it is well loaded with them, they suddenly withdraw it, strike it on the ground, to detach the sand from it, and swallow the ants, which adhere firmly.

ELEVENTH CLASS OF VIVIPAROUS.

This class is much more numerous, without doubt, than the preceding, since in it are classed apes, baboons, sagoins, makis, which all have a kind of hands with fingers, and of which some have a great resemblance to the human figure, others but little or none at all. All these animals inhabit warm countries.

The generick name of ape is commonly given to all the animals of this class; but very improperly, since there is a great difference between an ape and a baboon, and a still greater between this last and a sagoin; for they are not only natives of different countries, but have scarcely any thing in common in their shape. Apes, baboons, makis, are animals belonging to the old world, that are not found in the new; and as to the sagoins, it is just the reverse; they are only found in America. All of them have, it is true, hands and fingers; but the head, the face, the shape of the body, differ in all. The apes, properly so called, are the only ones which have features approaching those of man: the apes with tails have less of these, the baboons still less, and the sagoins, as well as the makis, are totally destitute of them: nor have they either the pouches in the cheeks, or the callosities on the buttocks, which we observe in apes and baboons.

APES.

THERE are two species of apes then, those with a tail *, and those which have none. The orang-outang, the long-armed ape, and the common ape, are of the second species; but the macaque, or bearded ape, has a tail. There are likewise differences of shape and size among the apes ; some are only the size of the fox, others are as large as a man, such as the orang-outang.

Apes are only found in the warmest countries of Africa and of Asia; they have the face so flattened and destitute of hairs, that they seem to possess the human countenance. Their hands, their fingers, their nails, almost resemble ours: they have the hair of a greyish brown, large callosities without hair on the buttocks, at least in part, and pouches in their cheeks. Apes eat rice, millet, lemons, oranges, walnuts, and in general all kinds of grain, fruits, and legumes; they drink water, milk, and even beer and wine, when they can get them, and also spirit of wine, so that they intoxicate themselves, and this is one of the artifices made use of to catch them. They live twenty, thirty, and forty years, and the females produce one young each year.

Apes

---

* These two species we think sufficiently characterised from one another, by the circumstance of the one having, and the other wanting, the tail, to intitle them to separate denominations. Thus, we find Buffon, Pennant, &c. have distinguished the former by the name of *monkey*, whilst the name of *ape* is confined to the latter.

Apes form among themselves a kind of colonies or plantations, composed of several thousands; or, at least, they inhabit woods, divided into large troops, and each ape knows the company to which it belongs, from which it does not separate. In these they observe a strict subordination; they establish chiefs to which they submit; they hold assemblies and councils, and, in case of attack, make a common defence. They mutually assist one another, make common magazines, place sentinels and relieve them, punish the negligent, have disputes among themselves, and imitate the manners of societies of ourselves.

The females carry their young on their back, in the same way as the negro women do, or as we often see beggar women do among ourselves. The young one embraces the mother's neck, and keeps itself firm on her back with its hind paws. When they wish to give them suck, they take them in their arms or fore feet, and present the breast to them, almost like women with their children.

The ape is in general thievish and malicious: it eats, drinks, or carries away whatever it finds, and always spoils much more than it eats and carries away. For, if it enters, for instance, into a field of rice, or of millet, it does not begin with examining the ears that are ripe, but with pulling first, and if it does not find them good, it throws them away; so that even, in a short while, a troop of these marauders will destroy a considerable harvest.

They commit their devastations with great precaution; they take great care to place sentinels, and have the eye and the ear constantly on the watch. When they plunder a field of grain, each takes two or three ears in his mouth, as many under his arm, as many in his hand: then they all make their escape with their plunder, leaping on their hind feet, clamber up the first tree, and there eat their grain. But, if pursued, they let fall what they carry under their arms, and in their hands, that they may not be embarrassed in their flight, and make their escape nimbly with what they carry in their mouth.

When about to plunder a tree, they begin by sending a spy on the discovery, who gets upon a tree, and surveys the whole country round, to satisfy himself that all is safe. If he perceive nothing suspicious, he gives a signal, at which all the others run, but all do not get upon the tree; there are only two or three, sometimes five or six, that have the charge of pulling the fruit, and which throw them down as they pull them to those that are below. These last, again, are not collected in a mass at the root of the tree, but distributed in a line at some paces distance from one another, and the first throws the fruit to the one next him, who again throws it to his neighbour, and so on, from one hand to another, to the very last, who collects them into a heap. At last, when the tree is completely robbed, the line advances farther, and the same method is continued till the whole provision of fruits, as cocoas, lemons, oranges, figs, be collected.

During this operation, they keep a good guard, and there are sentinels on duty on all sides; if it happen, however, that a sportsman surprise them without the sentinels giving them notice, they set up a dreadful cry, and, all making their escape, blame severely the negligent sentinel, or even, sometimes tear him in pieces.

The intelligence, and the imitative faculty of these animals, render them susceptible of a very varied education. You know how many tricks they learn, and how amusing their grimaces are. They learn to dance very well upon the rope, and to leap, to beat the drum, to handle arms and to fire, to draw a little cart, to carry wood, to ride on horseback, to turn a spit, and to receive the juice on a piece of bread, which they instantly swallow. Means are also found to employ their address to rob orchards; for they are learned to throw the fruit to a man, who remains at the foot of a tree, or else, the person, after having pulled a quantity, and collected them at the foot of the tree, retires, and the apes do not fail to return and bring them to the very last; after which they are taken away.

Some apes are very fond of eating oysters, muscles, or other shell fishes, and the method they take to get at them is very curious. When an ape finds an oyster, for instance, he waits till it opens its shell, and has a small stone ready to introduce into it, so as to keep it open, that he may take out the oyster at his ease. But if the stone happen to be too small, or chance to slip whilst the ape has his foot within, then the shell closes, and the poor creature is so completely caught, as to be forced to continue on the spot, and there die miserably, or else carry away the oyster on its foot, which is sometimes cut off by it, after giving it exquisite pain. Sometimes it has the precaution to break the shell with a stone.

It is very difficult to take living apes, both on account of their cunning, and their surprising agility, in climbing trees, and leaping from one to another, and because they are always assembled in such great numbers, and defend themselves vigorously. If they are attacked on the ground, they charge the enemy vigorously, making the most horrid gnashing with their teeth, their eyes sparkling, and with a thousand mouths and wry faces; and defend themselves by throwing stones, biting, striking, scratching in the best manner they can. If, during the attack, they find themselves perched upon a tree, they rain down a shower of fruit, broken branches, and even their own ordure on the head of the assailant. If they have a river to traverse in their flight, the strongest throws himself in first, the second gets a hold of his tail, or his hind parts, the third of the second, another of this, and so on, so that the first draws the whole chain after him; and when they get to land, they continue their route in good order.

P. But, dear Sir, if apes have so much sense, would they not do better to swim one beside another?

M. Very well! thus, there are some able naturalists who relate this affair in a different manner, which supposes that the ape is not fond of water, or cannot swim; in which case, the expedient is very ingenious, and worthy the reputation of the ape tribe. First, it seems probable that they never cross large rivers, and that it is only small brooks that they venture through. Now, guess what method they take.

P. Perhaps they do as I once did myself. I got upon a large willow that hung over the margin of the river, and leaped to the other side.

M. Not amiss! but if the brook should be too large for such a leap? Now, you muſt understand, we are speaking of apes with a tail. It is necessary to attend to this: for this instrument is of infinitely more use to them than it is to other animals, so as to serve them in the same manner almost as its trunk does the elephant. Then, if the apes have a brook to cross, or even, when they wish to go from one tree to another, which is not so near as to be done at a leap, one of them gets up upon one of the most elevated branches, on the side next the water, then fixing by one another's tails, they form a long chain, which they swing, till such time as the one that is at the extremity, can reach a branch of a tree on the opposite brink of the river, or on that which they wish to go to. Then the first to which they were suspended lets go his hold, and they find themselves all suspended the opposite way, so that they follow that of the other extremity of the chain.

P. But are not snares likewise laid for them?

M. Yes. It is even easier to deceive them, than other animals that are not so expert. Several artifices are made use of for that purpose; which all succeed well; for instance, a vessel filled with water, and another with glue, are taken and carried to the foot of a-tree, where there are apes, so as to be observed. Then, a person takes and washes his face several times before them in the water, and, after being certain that the apes have observed, he leaves the vessel of glue on the ground, and carries off the vessel of water, to conceal it at some distance. The person is no sooner gone, than the ape descends in haste, comes to wash his face too, and glues up his eyes so completely, that he is caught immediately.

Another method is; a person goes and takes with him so many small boots, shoes, breeches, which have been carefully besmeared within with glue or pitch. The person then goes near the tree where they are, and takes off or puts on several times his boots, his shoes, or his breeches, and then goes away leaving the clothes that had been glued. The ape, which cannot see any thing without imitating it, comes instantly to do the same, and dresses himself in such a way, that he cannot run, so that he is easily taken.

Sometimes a person carries mirrors, in which, after surveying himself several times, in a manner sufficiently marked, he goes away, leaving on the ground so many others with springs, disposed in such a way, that when the ape comes to take them, to admire himself in his turn, his two fore feet are caught in a trap.

At other times vessels filled with spirits of wine, or any other intoxicating liquor, are left at places where apes frequent, after pretending to drink before them. The knaves run to them as soon as the person goes away, and drink so freely of them, that they get drunk, and fall asleep.

When their flesh is only wanted, they are shot with a gun, in the same way as hares. Tygers and leopards are very fond of them, but the apes are too nimble for them, and they cannot follow them up trees. But serpents are more formidable enemies for them, because they surprise them asleep, kill them and eat them, or sometimes swallow them at a single morsel.

An ape is never at rest, and is constantly spying every corner of a house, when it is left at liberty; what is going on there, and particularly whether there is any thing to be gotten. Even when not hungry, it does not cease to carry off constantly, and to fill at least the pouches in its cheeks, sufficiently to serve for several repasts, which it goes to hide in its hole, or in some by corner. It is very alert in taking the corks out of bottles, very active in examining vessels, and very fond of filling itself with any wine, beer, milk, that it may meet with. But if it cannot get out the cork, it goes and strikes the bottle against some hard substance, and either breaks off its neck, or knocks it to pieces. It is easily put into a passion, and when in this condition, it shews its teeth, and shakes its lips and its flabby cheeks.

The orang-outang is the largest species of the apes: It is likewise called pongo, jocko, wild-man, man of the wood, barris. Its size is from four to six feet, and its thickness nearly the same as that of a man. Its head is thick and hairy, its ears are destitute of hairs, its eye-lids are furnished with lashes, its face, which is without hair, resembles an old human visage, its nose is short and flat, its mouth large, its feet have no claws, its hands, its belly, its chest, are almost similar to the same parts of the human body. Upon the temples, and on the back part of the neck, it has long falling hair, but little hair on the rest of the body; it has no pouches in its cheeks like the other apes, nor callosities behind, nor tail. It generally walks erect like ourselves, and its size seems to anounce that this is its natural attitude. See Plate VI. fig. 18. The orang-outang inhabits the thickest forests of Africa and of India; it eats all kinds of plants and fruits, and also oysters and shell-fishes.

These animals do not permit any quadrupede to remain in the district which they inhabit: they expel them all, even the elephant himself, whom they sometimes kill with stones and with sticks. If they perceive a fire in any place, without negroes around it, they approach it with joy, and place themselves beside it; but, as they have not sense to put in wood into it to support it, their joy is of short continuance, and they soon see it extinguished. They do no injury to the negroes, except only that they may sometimes fall upon them to plunder them, and that they sometimes carry off their young children, who, on the other hand, have scarcely been a few weeks with them, till they have all the appearance of young apes; so that their parents have the utmost difficulty in recognising them, and still more in recovering them from the apes; which, indeed, cannot be done without danger.

But I must now inform you what opinion the negroes entertain of these apes. They believe that they are a foreign nation come to settle in their country; and, when asked, why they do not speak, they reply, that it is certainly for fear, if they were to speak, of being likewise compelled to labour.

P. But in this way the negroes must be afraid to labour likewise themselves?

M. That is not very surprising; these poor wretches are so fatigued, tormented, maletreated, as to render the European service extremely odious, and even to inspire them with an aversion to labour in general. In their native country, where they enjoy liberty, they fish, they hunt, they cultivate a little, and they do not call this labour. When they have plenty of provisions, they deliver themselves up to the most perfect repose. The want of speech, however, does not hinder the orang-outangs from being reduced to slavery, from being tamed, and taught to perform different services; they are gentle, tranquil, wise, not at all wicked, but only a little impudent and thievish, like their brother apes. Travellers inform us, that the orang-outang carries water and wood to the kitchen, turns the spit, beats the mortar, rinses glasses, washes dishes, pours out drink, covers a table, places the seats, comes when called, and brings his plate to receive his portion. Sometimes even they will sit at table, where they will help themselves, eat properly, using a spoon, a knife and a fork, make their bed, lie down in it at full length, cover themselves with the bed-clothes, rise in the night-time to make water in the pot, though they sometimes chance to wet the bed, when they are not in the humour to take this trouble, and when they are punished for this negligence, they cry almost like children.

They are but seldom seen in Europe, because they cannot support the least cold, and die soon after they are brought from their native climate, whatever care may be taken of them.

The long armed ape, called gibbon, which you find represented in Plate VI. fig. 19, is almost as large as the orang-outang, and forms a very curious species of ape. It has much resemblance to man, even in the face, and more than the orang-outang, but it has pouches in the cheeks, and callosities in the buttocks; and what likewise distinguishes it from other apes, is the prodigious length of its arms, which almost touch the ground when the creature stands straight; so that it can walk on its four feet without bending. It has the head round, the visage flat, without hair, and of a dark brown, but surrounded with a circle of hair of whitish grey. The middle of its body is considerably thinner than the upper part, and covered with black hairs; and it has very hard callosities on its posterior parts. This ape has no tail. It is very tranquil and gentle, affectionate even, but of a delicate temperament; the least cold, the least moisture kills it: and this is the reason why we have so seldom the pleasure of seeing it in Europe, whither it would not fail to be brought, if it was capable of being transported.

The common ape is not so delicate; it is even the one supports best the cold of our climates, and this is the reason that we see it so often in this country, as you know. You may have observed that it has the head long, with a muzzle almost similar to that of a dog, whence it has got the name of *cynocephalus*; its face is flat, and its hair of a greyish white. It is very pleasant, and very docile, and we may divert ourselves with it as we choose; for instance, it may be made to wear small-clothes, to leap, dance, &c. The wealthy take delight in dressing it in livery, like their footmen, which has given occasion to some pleasant mistakes, as the following.

A peasant was one day, by orders of his master, carrying a basket of pears to a person of distinction. In entering the house, he met two tall apes in a blue suit, laced with silver, and a sword by their side, which did not fail to run after the basket, and take a few of the pears. The peasant, who had never seen an ape, took them for children of the family, and taking off his hat respectfully, allowed them to take their pleasure; after they were satisfied, he went into the house, and presented the rest to the master. But he, upon seeing the basket half empty, could not help asking, why it was not the same as his master (he had no doubt) had sent it. An't please your honour, answered the simpleton, drawing back his foot, the basket was perfectly full, but your young gentlemen, whom I met just there, have taken the half of them away.

The macaque (Plate X. fig. 14.) is found in Africa, it has the hair brown, the tail pretty long. It may be tamed, and is very gentle and pleasant, except when it sees dogs, which it cannot bear.

The Indians, without taming apes, know how to derive a kind of service from them, which is that of gathering cocoa nuts: For as they cannot easily climb cocoa trees, they save themselves the trouble, by pursuing apes to make them climb them, and when they are up, they continue to throw stones at them. The apes, in order to defend themselves, gather cocoa nuts, and throw them at their head, so that the Indians have only to shun the blows, and to gather the nuts.

THE BABOONS.

We have already taken notice that these animals belong to the old world, and that they are only found in the warmest countries of Africa and of Asia. They have all tails and a round head, a little long, or oval shaped.

The choras, or large baboon, is a native of India, and particularly of the island of Borneo. It is almost the size of a bull dog; it has the head long like a dog, with a tuft of hair on the crown, the neck long, the ears long and naked, the visage long and smooth, the muzzle long, the nose of a blood red, situate between two spots of a sky blue, that are elevated and placed obliquely. Is has the tail short and turned up, and large red callosities behind, with woolly hair of a dull grey on all the rest of the body. It is a very pretty animal, which we have frequently had occasion to see. There are two represented in Plate I. fig. 1. is a young one, and fig. 4. an old one. A baboon has been often seen take a child out of the cradle, carry it to the top of the roof, unswathe it, kiss it, play with it, then swathe it carefully again and bring it back to its cradle, without doing it the least injury. It was undoubtedly a very distressing situation for the parents to perceive this dreadful sight; for if they had even offered to pursue the baboon, it would instantly have fled, and the child would inevitably have fallen down.

The mandrill, or ribbed-nose baboon, is the size of this last, has the cheeks of a deep blue, with deep oblique wrinkles, the hair brown, and of a yellowish green, the callosities behind of a blood red, and the tail short. It inhabits Guinea.

THE SAGOINS.

These are animals of the new world; they have no cheek pouches, no callosities on their buttocks, and have more of the shape of a cat than of an ape, whence, in some countries, they have got the name of sea-cats, or rather transmarine cats, as coming from America by sea. They have the tail very long and covered with hairs, at least the greater part, for there are different species of them. This tail serves for suspending themselves to the branches of trees, and for keeping themselves firm; as also for swinging themselves, and going from one branch to another, or from one tree to another. They can even, with the extremity of this tail, seize fruits and carry them to their mouth, as with a hand. They likewise use it for catching fish, for they dive well, and are excellent fishers.

The most part of these animals are knavish, malicious, impudent; they defend themselves boldly against huntsmen, and even insult individuals who only pass under the trees on which they are, both by throwing their excrements at them, or pieces of wood which they break off, and by throwing themselves nimbly down and leaping in peoples' faces. When one of them is wounded, all the rest run about it, examine the wound, and keep it together till such time as they form a ball of mashed leaves, with which they plug up the hole. Apes do the same.

The sapajou has the hair of a blackish grey, and a hideous aspect. It is the size of a fox, and, of course, the largest of the transmarine cats. Its tail, which is long, but bare beneath for the one half of its length, serves it for playing a thousand tricks. It has no thumbs on the fore hands, and hence it has obtained the name of *tetradactyle.* The sapajous go in troops of several hundreds together, and are extremely alert in leaping from one tree to another, by means of their tail. When the tree is too distant for a single one to reach it, several of them suspend themselves to one anothers' tails, and form a chain which swings till the one at the extremity gets a hold of a branch of the tree. In this manner, they likewise cross small rivers, as we have already mentioned. See Plate I. fig. 3.

The smallest of this family are undoubtedly the musk apes, which are not larger than a squirrel, and have the head small and round, the eyes large and fixed, the ears large and pendulous, the tail long and thick, the hair of a greyish red. They are fond of fruits full of juice, and particularly cocoa nuts: they make an opening into them by gnawing the shell, with great patience, after which they extract the juice and the pulp with the fore foot, and when these shells are empty, with a large enough aperture, they can cram themselves into them altogether, to spend the night there. They are likewise very fond of fish.

But this inconsiderate taste of the Coaita (this is its Brasilian name) frequently costs the animal its life, or its liberty: for if a cocoa nut be thrown down to it with a small aperture, it contracts its hand to thruſt it into it, and then it is surprised. As it has not time to withdraw its paw, and as it cannot go far dragging the nut, it it taken prisoner for attempting to derive profit from a hole which it had not the trouble of making. It goes constantly on its four feet, like its other companions. See Plate VI. fig. 21.

THE MAKI.

THIS animal is distinguished from the former by not being confined to the new world, being also found in the old; by its having on the middle fingers of the hind feet, instead of nails, a sharp claw, and by the female having four paps on the breast. There are both large and small makis;

some have a tail, and others want one: all, however, have more resemblance in shape to a greyhound than an ape.

The loris is the size of a squirrel, wants a tail, has the hair of a bright brown, and inhabits Ceylon.

The mongous is as large as a cat, with the tail long, the hair grey and soft, and is found particularly in Madagascar.

To conclude the article of apes, we may observe that their epithet of quadrumanes, or animals with four hands, is taken from their hind feet wanting claws, and having fingers as long as those before.

MAN.

WITH him, with ourselves, and such as resemble us, we shall conclude our review of the viviparous class of animals, and even, of all animals.

It is not an expression suggested by our vanity, to call man the master-piece of creation, at least, in respect of our world; he is, beyond doubt, the most perfect, and the most distinguished being that the Creator has placed upon this earth.

In reality, whatever address, whatever intelligence, some animals may exhibit, whatever similarity of shape they may possess in common with us, it cannot be said that there any where exists an individual that surpasses man in any of his perfections.

Other animals execute whatever they do from the impulse of an internal movement, called instinct; not, indeed, that names point out the real nature of things, but to distinguish it from human

man reason, which, on every account, must be considered as something of a superior nature. This instinct then, which, in some, produces actions extremely similar to some of our own, all of them obey, and even necessarily, though not involuntarily. From their earliest years they possess the same powers that they would ever acquire in their free state. Though the females assist their young when they begin to fly, to swim, to walk, or to feed, &c. yet they can scarcely be said, strictly speaking, to instruct one another. The strong have only the instinct to assist the weakness of the young, till such time as they become strong in their turn. In general they operate always in the same manner; a swallow constructs her nest precisely like her neighbour, exactly in the same manner one year as another, and always with the same materials. Those even that live in society, and carry on joint operations, show the same uniformity in all their common labours; it can only be said that these species possess a more extensive instinct than others; that is the whole.

As to man, however, we perceive that he does not blindly follow his reason, and that he is not absolutely over-ruled by seasons or by his wants, natural or artificial. He does what he has a mind, he makes choice of the day, the moment, the manner, the place, the subject, and alters even his choice as he chooses. And not only he does what he chooses himself, but likewise makes other creatures subservient to his pleasure; he bends them, arranges them, trains them, disposes them to execute his designs. There is no animal so large, so strong, so terrible, or ferocious, from which he does not compel submission: in a word, it is not saying too much, to assert that man can accomplish every thing.

In one respect, however, we find a difference between man and beasts, which seems in some sort in favour of the latter, and to give them a superiority. No animal continues so long in a state of weakness and imbecility; none acquire at so late a period, the full exercise of all their faculties. He can scarcely be said to have arrived at this in his fifteenth year.

What is man at the moment of his birth, or even for the first and second year of his existence? When newly brought forth, he is a worm that crawls, that drags himself with difficulty on four pats, that cries and sobs for food, yet does not know what he wants, that has neither strength to take it nor to carry it to his mouth: whilst the the meanest animal, almost at the instant of its birth, can run, seek and take its food itself, and in a short space is able to furnish itself a lodging, and to provide for all its wants; what a difference!

And notwithstanding, this creature, that is so weak, is destined to become, by his own proper resources, the master of all others. His reason which appears so late, will one day triumph over the most exalted instinct. And in truth, since the Creator, instead of this last; has endowed us with a reasonable soul, it is easy to perceive, the cause of its slow progress, and of that superiority which it will one day attain. For the soul, on its entering this world, or from the first moment of its existence, cannot be acquainted with what passes there, nor have any knowledge of the objects which surround it. It is during the weak state of the body, that it informs itself of every thing, and also, during the continuance of this discipline, which is called education, strength would be useless to the body which it commands, and which serves as its instrument. Thence it happens, that if the circumstances in which the soul is placed, during this first period, be happy and favourable, either by chance, or from deſign (which is called a good education), it will arrive at a surprising degree of perfection; whilst, if the opposite be the case, or if the education be bad, if man be abandoned in his infancy, like goats and hogs, he will scarcely arrive at much a greater degree of perfection, than that of the animals which are produced to brouse the grass, or to feed on acorns.

How many men think ye there may be, nearly, in the whole extent of the habitable world? They are computed at about a thousand millions; and among this number, there are thousands that are altogether or nearly savage. These, without having any notion of a Supreme Being, lead a life but little different from that of brutes, dwelling in woods, and in subterraneous holes, subsisting on the same aliments, and massacring one another.

You possibly have no idea, of all the external differences that are found among men. You know that some are small, others big, some thick, others slender, some fat, others lean; that their hair is red or black, fair or chesnut, white, grey, &c. But there are countries where men are black over the whole body, others where they are only half black, others, where they are red like leather, others in short, where the inhabitants have a shade of olive, more or less deep. There are none, however, where we find races of giants or of dwarfs; not that we do not sometimes meet with men, remarkable for their bigness or their littleness;

ness; but even these instances, are themselves something extraordinary, and we never meet with many of these dwarfs or giants together, far from seeing whole nations of them.

But what is certain and ascertained, respecting the difference of stature among nations, is, that in the coldest regions, and such as are situated nearest the poles, more little men are constantly found than big ones, or even the natives are all of a small size; but they are not dwarfs, however, and are otherwise well proportioned. In the same manner, under the warmest climates of Africa and Asia, the men there are not of a much larger size, nor even of a good shape or mien; for, with their deformed faces, their flat noses, their thick lips, their woolly hair, the Negroes and Hottentots will never be taken for Adonises.

We must not imagine, however, that the Indian nations are savage enough to go on all four, like beasts, to live only in woods upon fruits, upon roots and wild plants, without any fixed language, and, in a word, to possess nothing beyond apes. They live in huts, constructed both above and below ground; they are collected into societies more or less numerous; they have their own peculiar language spoken among them, and even understood by their neighbours. Thus they are not people absolutely and completely savage.

But it has happened more than once, that a human being, male or female, has wandered, been lost, reduced to live in the woods with the beasts for several years, and has at last become so like them, as to have acquired the habit of walking on all four, of clambering up trees, of feeding upon the same things that beasts feed on, as to have its body by degrees completely covered with hair, and to have intirely lost the use of language and of reason: in a word, so to have become completely wild.

It would be too tedious to relate to you, all the instances that have occurred of this: our own authors furnish us with such as have happened in France: I shall mention a few that have taken place in other countries.

In 1544, a wild boy was caught in Hesse, that was shewn at the court of the Landgrave Henry. At the age of thirteen years he had been carried away by the wolves, which, instead of devouring him, thought proper to rear him. They nourished him with the choicest pieces of their prey, and were so attentive to him, as to make a bed of straw and of dried leaves for him in a hole, and to lie round about him to keep him warm. They next took the trouble to learn him their pace, in which they had been so industrious, or he so apt, that he was able to run as fast as them, and to take the most astonishing leaps. In a word, this manner of living pleased him so much, that he became perfectly accustomed to it, and, from his own confeſſion, preferred the society of wolves to that of men. Thus it was extremely difficult to make him recover the human gait, insomuch that it could only be effected, by obliging him to remain erect between posts planted on purpose.

In 1661, a boy of nine years old was found in Lithuania among bears, who, when it was tried to take him, it is said, defended himself vigorously with his teeth and nails. There was another along with him, who escaped from the huntsmen; and as to the former, it was impoſſible ever to tame and subdue him, much more to accustom him to our manner of living and dressing.

In 1694, another was likewise caught in Lithuania, among bears too, who was twenty years of age, was completely covered with hair, and walked on all four. He showed not the least symptom of reason, had no language, and not even a human voice. He was tamed with the utmost difficulty; however he was at last made to keep himself erect by being tied to a wall, to eat like us, and at last even to speak, though with a voice that was hoarse and scarcely human. He recollected nothing of his former wild state, a very singular circumstance.

One was likewise taken in Ireland, that was found feeding on grass, bleating like a sheep, running extremely fast on all four, and that was very difficult to civilize.

In 1717, a girl of nineteen years old, was taken in Holland, that had been carried away from her parents at the age of sixteen months, and had grown wild, so that she lived solely on grass and leaves. Her skin was extremely brown, hard and coarse, her hair very long and thick, and the whole of her language amounted only to a little stammering. She walked erect, however, and even wore a kind of apron round her waist, which she had made of straw. She was much afraid at first of the presence of men: but in the end she became very sociable; she learned to understand signs that were made to her, she returned a salute, learned even to speak a little, and to spin tolerably.

In 1719, two boys were seen in the Pyrennees, that leaped among the rocks like chamois and deer.

The following story, however, which happened in France, is too remarkable to be passed over here, though it may be found more particularly related elsewhere. A gentleman in hunting near the river Marne in Champagne, having observed two black bodies suddenly make their appearance on the water, took them at first for water-hens, and fired at them. The two supposed water-hens dived instantly, and re-appeared at a great distance in the river, without shewing any signs of being wounded. They were two girls about the size of children of ten years old, that lived together without any person knowing whence they had come. They went themselves to catch fishes, in the rivers, on which they seemed chiefly to subsist. As they were unhurt, they left the water with a good supply of fishes, which they immediately cleaned and washed, and likewise ate with a good appetite. It was observed that they did not chew their mouthfuls, but after taking a bite of a fish, they swallowed it entire.

After their repast they left the brink of the river, and went farther away. At some distance from this, one of them found a chaplet that had been lost in the fields; it fell a crying and leaping for joy; but immediately dreading that its comrade might see what it had found, it concealed the chaplet in its hand. The other, however, which had observed, gave it so violent a blow with a stick on the hand, that it could scarcely move it; and with the other hand, in which it had a club, it gave it so powerful a blow on the head, that it knocked it down. The poor creature uttered a dreadful cry as it fell.

Then the conqueror made a bracelet of its chaplet of beads, and after satisfying itself with it, it then took pity on its companion that had affronted it, and was now lying weltering in its blood. It run up and down to get some frogs, which it skinned, and applied the skins to the wound, for stopping the blood. It afterwards bound up its head with a bandage made of the bark of a tree, which it tore off with its nails, and when this operation was finished they separated. The wounded one took the road to the river, the other that to the village of Songi.

It was suspected to be thirst that made the creature approach this place on the setting in of the evening; but there was little probability that a wild girl that lived on raw fish, could not quench her thirst with the fresh water of the river, or in some spring in the fields. Her feet were naked, but her body was covered with old rags and the skins of animals, and her hair was tied up under a head-piece formed of a gourd: her face and hands were as black as the same parts of Ethiopeans. She also carried a club in her hand.

The first people in the village that met with her, fled, calling out that it was the devil; every person believed it, and in an instant all the windows and doors were shut. There was a peasant, however, that imagining the devil might be afraid of dogs, let loose upon the girl a large mastiff, with a collar about his neck, set with iron pikes. The girl perceiving him come furiously upon her, stopped and waited for him without moving from the spot; he no sooner came within reach, than, with a blow of her club on the head, she laid him quite dead. Overjoyed at this victory she took a few leaps around the dead dog, and afterwards attempted to open or force the door of a house: but not being able to accomplish this so easily, she retired again to the fields, and went to pass the night on a tree.

On the following day, some person in the village, alleging that the said devil was no other than a wild man, thought that thirst had compelled it to come to Songi, and advised to carry out a pail of water to set beneath the tree. This was done without catching it. As soon as it wakened, it began to look round on every side, and seeing nobody it came down, plunged its face in the water, and fell to drink freely. Having some distrust at this appearance, it afterwards ascended its tree again. Seeing this stratagem did not succeed, the peasants sent a woman with a child in her arms to walk beneath the tree, holding some carrots and some fishes in her hands, which she shewed it. It hesitated for some time, but at last it came down and run towards the woman, who continually advanced towards some people who were lying in ambuscade: so that in running after the fishes, it was taken before it was aware. It was carried before a magistrate of the place, where seeing some fowls that the cook had killed, it leaped upon them and seized one, which it tore in pieces and ate immediately. It likewise ate a rabbit that was given to it, after having skinned it.

A shepherd of the place took the charge of it, and took it to his house to tame; but it cost him infinite trouble, and many blows, before it came the length that he could leave it at liberty in the house. It had thick strong fingers, with which it easily made holes in walls or in roofs; it run upon the roofs like a cat, and sometimes went through such small holes, that it was impossible to conceive how it got into them.

It escaped oftner than once, though it was always retaken again, and after several years it still ran so fast, that it was impossible for the nimblest man to catch it. It still climbed trees almost as nimbly as a squirrel. It was afterwards put into a convent, where it remained some years almost without motion; at the end of this period, however, it was still able to catch a hare in the chace in the open fields, which it brought alive to some people that had come to see it out of curiosity.

Whatever pains were taken to make it lay aside its taste for raw flesh, for leaves of trees, and roots, and even to render it perfectly sociable, still whenever it saw a new face, it uttered the most horrid cries. When walking, if it came near a pond or a river, it threw itself in with all its clothes, went to the very bottom, and did not come out till after it had eaten some frogs on the spot, nor without bringing out some more, with a good supply of fishes.

One day, a person of distinction wanting it to dine with him, it happened that, of all the variety of dishes on the table, there was none to its liking. It then rose up, went straight to the pond, and returned in a few minutes, quite joyful, with an apron filled with live frogs, which it began to distribute among the company, laying them on the plates of such as were averse to take them in their hands. You may imagine what a scene it was, to see frogs leaping on the table, on the plates, on seats, soffas, and through the whole apartment!

At last the lady was baptized and got the name of Madam *Leblanc*; but neither the consecrated water, nor the new name, produced any change in her dispositions. She still retained her taste for raw meat and warm blood, so that whenever she was given, or could catch, a fowl or a pigeon, she immediately opened its head with her teeth, and sucked the blood warm.

She was several times dangerously sick, and was exposed to such misery, that the person who took care of her, could not help asking her one day, how she expected to subsist hereafter. To which she replied, full of confidence in Divine Providence: "And wherefore would God have sought me out, and taken me from the depth of the woods, from the society of beasts, and then made a Christian of me, to neglect me afterwards, and let me die of hunger? It is impossible: I know him alone; he is my father; he will take care of me." She at last died in 1754, in extreme want.

These instances of wild people, of both sexes, that have subsisted in the depth of the woods, exposed to all the injuries of the seasons, and braving them successfully, as well as other dangers, may give us some idea of the natural strength of our body, and show us, in a striking manner, that nature has not been worse to us than to other animals, if we confine ourselves to simple nature. But, besides, we every day see instances, not less striking, of the strength, agility, and suppleness of the human body, in buffoons, and tumblers, that dance on the tight or slack rope, suspend themselves in every manner, make thousands of dangerous leaps, and play all kinds of tricks.

What is likewise worth taking notice of, are the instances which we see of people who will swallow a hatful of stones, eight or ten pounds of meat, five or six pints of beer or wine, and a pint of ardent spirits above, without reckoning a proportional quantity of bread, then bring the whole up again, if you choose; which, in reality, is not very pleasant. We even see people that break glass vessels with their hands, pulverize the pieces with their teeth, and afterwards swallow them.

It is unnecessary to tell you of our external conformation, and to mention to you that we have arms and legs, feet and hands, with five toes and fingers; that the whole of our body is covered with a thin epidermis, and with a skin that incloses a prodigious number of vessels, sanguiferous and others, of nerves, bones, tendons, muscles, with blood and other juices; pierced too with so many pores, that the sweat frequently breaks forth in large drops; laſtly, that we have hair of different lengths, that we drink, eat different things, sleep, speak, &c. But I shall mention to you ſomething of our internal structure.

The Creator has bestowed upon us five kinds of organs, which we call our five senses, by means of which we are informed of whatever passes, or is situate, near us, and even to a certain distance.

By means of the tongue, which is the sense of taste, and of those extremely sensible nervous papillæ with which it is furnished, we distinguish whether an aliment or a drink be sweet or bitter, sharp or acid; besides which it also assists in deglutition, and likewise in speaking, and in the modulation of the voice.

By the eyes, which are the seat of vision, we enjoy the spectacle of the universe, we judge of distances, of figures, of colours, &c. They are situated in circular cavities, formed by the bones, and are defended externally by the eye-brows and the eye-lids, furnished with their ciliæ, which defend their delicate surface from duſt, or the approach of insects.

By the ears, the seat of hearing, we enjoy the pleasures of harmony, and of conversation, and we are assisted by them in judging of the objects that surround us. These are a sort of cartilaginous shells, fitted for receiving the air, and transmitting to us its different vibrations.

By the nostrils, or nose, the seat of smell, we receive the perfume of flowers, and of aromaticks, and we are instructed, by the exhalations that strike its papillæ, and its delicate membranes, concerning the nature of neighbouring bodies. Our nose, osseous above, is cartilaginous at the inferior part, and divided internally by a partition.

As to the sense of touch, it takes place over the whole surface of the body, which, for this purpose, is covered with a tissue of fibres, of nerves and vessels interlaced, so as to form a kind of texture, which we call skin. This sensation is the foundation of all others, and rectifies them: it may even be said that light touches our eyes, that the sapid particles of bodies touch our tongue, that odorous corpuscles strike our nose, that the vibrations of the air strike our tympanum; but the principal seat of touch is in the hands.

Generally we have the mouth furnished with two and thirty teeth, namely; eight incisive, four canine, sixteen molares, and four wisdom teeth. Of the eight large incisive teeth, four are seated above, and four below; they do not cut in children till the seventh month, and sometimes the twelfth. Beside these are situated, the canine teeth, that are sharp pointed, and are placed two in each jaw, to wit, one on the right, and the other on the left of the incisive; they cut about the ninth or tenth month. After the canine come the molares, which are large and unequal, four on each side of both jaws, that is, eight above, and eight below: they appear about the end of the first year, or during the course of the second*. In the last place come the four wisdom teeth, so called, because they do not appear till the age of sixteen, twenty, sometimes even later, and sometimes not at all; in which case there are only twenty-eight, instead of thirty-two teeth.

The incisive teeth, the canine, and also the four first molares, all fall out in children between their fifth and their eighth year; but they are soon replaced by others that do not fall out. The whole time of the cutting, falling out, and recovering of the teeth, is, for man, a time of pain, and even of danger. When once we have fairly gotten all our teeth, it is an important, and even an essential attention to preserve them in good condition, not merely to keep them clean and white, but especially to avoid the cruel pain of the toothach, and, still more, the inconveniences that result from their loss, when they drop out rotten, or when we are obliged to pull them; which is a punishment not less cruel. The best way to defend one's self from all these misfortunes, is to be attentive to the washing of them always with cold water after taking food, to allow no extraneous matter to remain on them, to take neither meat nor drink too warm, and not to pick them with too hard substances, as iron or steel.

As to the internal structure of our body, this is the skeleton of it in the first place. The head rests on a flexible pillar, formed of twenty-four vertibræ, that form the spine of the back. These vertibræ, are round bones to which are attached the twelve ribs that form the thorax, or cavity of the chest. Seven of the vertibræ belong to the neck, twelve to the back, and five to the lumber region.

---

* Our author is inaccurate here. The eight backmost molares do not appear till after the 7th or 8th year, or from that to the 16th.

These bones form a cavity, in which the Creator has placed in safety, behind ramparts, the lungs, the heart, and other internal parts, and also the intestines and bladder. There are reckoned, in all, to the number of two hundred and sixty-six bones, as well small as great, which all of us have, and of which each has its particular function and destination, necessary to the play of the whole machine.

The fleshy parts, placed beneath the skin and above the bones, are composed of long slender fibres, almost all destined for the execution of our different movements.

Within our cranium is lodged the brain, which resembles almost that of a sheep or a calf. We have distributed over our whole body a large quantity of nerves, which all terminate in the head, and convey thither the sensations of all the other parts of the body; so that, if one of these nerves be irritated, intelligence of it is immediately conveyed to the head. The small toe cannot suffer pain, nor get the slighest puncture, without the head sympathising with it. In a word, some people imagine the head to be the seat of the soul.

The stomach is situated in the upper region of the cavity of the belly; it is of an oval figure, and generally of the size of a child's head in adults, though it be sometimes found larger and sometimes smaller. The largest extremity of this pouch, which receives the esophagus, is situated on the left side. As soon as the aliments are taken down into the stomach, they are penetrated with the gastrick liquor, they become warm, soft, diluted, and diſſolved in such a manner, that, at the end of two hours, or thereabouts, they are reduced to a kind of soup, called chile,

which

which is distributed through the intestines, and afterwards converted into blood, and then into other fluids necessary for the support of life. Lastly, the grosser part is rejected, under the name of excrement.

To the left of the stomach is situated the spleen, and a part of the epiploon ; and above the spleen is situated the liver with the bile, whose action is so necessary to the completion of digestion.

The motion of the blood in the veins and arteries is a circulation which is effected by means of the action of the heart and blood vessels.

The heart is situated in the chest beneath the ribs, and is a small hollow muscle, of longish shape, whose pulsation easily indicates its situation. Its cavity is divided into two ventricles, or chambers, each with its auricle. The auricles, so named from their figure, are nothing but two small hollow muscles, which make the communication of the arteries and veins with the ventricles. They compress the blood which they receive from the veins, to make it enter the heart. The anterior vein, which enters the right ventricle, is called the vena cava, and the other the pulmonary vein ; but the anterior artery again, is called the pulmonary artery ; and the other gets the name of aorta.

All this disposition is destined for the circulation of the blood, which is carried on in the the following manner. The vena cava receives the blood that returns from all parts of the body, and sends it into the right ventricle of the heart, whence it passes into the lungs through the pulmonary artery. It is returned from the lungs through the pulmonary vein, which transmits it to the left ventricle, and from thence passes into the aorta, which distributes it through the other arteries, large and small, and thus transmits it to the farthest extremities of the body, by an infinite number of ramifications. It returns again by the vena cava; the heart again dilates for its reception, and this is what is called the diastole; it afterwards contracts to expel it, and this is the systole; from these two movements proceed the pulsation of the heart and arteries.

In a person in good health, this pulsation takes place about a hundred thousand times in twenty-four hours? which is nearly seventy pulsations in a minute.

The quantity of blood in a grown person in good health is computed to be about fifty pounds weight; and all this quantity of fluid, which circulates through canals of a hundred and forty-eight feet long, takes only a space of fifteen minutes, or a quarter of an hour, to pass intirely through the heart.

The fluid, which is formed from the aliments, by digestion, or the chile, is of the consistance and colour of milk; the most part of which becomes red in passing through the lungs, and then takes the name of blood.

The lungs consist of two lobes, of a spongy substance, and separated one from the other, which fill the right and left cavities of the chest. Each lobe is formed of a multitude of vesicles, which open every moment, by the entrance of the air that we breathe, and afterwards shut again. This respiration of air is so necessary to life, that death is the immediate consequence of its suspension.

During the course of the blood through this prodigious multitude of vessels and glands, different humours are separated from it, some of which serve for the nourishment and growth of the body, others for different purposes: a part escapes through the pores of our body by perspiration, and another part likewise drains off under the name of urine.

The kidneys are situated on the right and left sides of the spine of the back. They receive, from the aorta and the vena cava, certain branches called emulgent vessels, because they serve for the secretion of the grosser parts of the blood. The external part of the kidneys is composed of vessels that are interlaced in a serpentine manner, and terminate in nipples, through which the urine passes into the cavity of the kidneys, and thence into the bladder, by particular canals, from which it is again evacuated externally.

We must not conclude without saying a few words concerning giants, dwarfs, and monsters.

The archduke Ferdinand of Austria had a dwarf that was not above three palms high.

In 1760, there lived in Paris a young Pole, of twenty-two years of age, whose size did not much exceed the height of two feet. He had an older brother that was only about two feet and a half, and a sister of sixteen that was not quite two feet.

In 1751, there was seen at Amsterdam, a peasant, of twenty-six years of age, that was only a foot and a half high.

So much for dwarfs. As to giants, we may mention a soldier, in the service of the archduke Ferdinand, whose height was above ten feet.

Duke John Fredrick of Hanover had a halbardman that was above eight.

In the same way, we see people come into the world with marks or spots of all kinds of shapes and colours, and with more or fewer members than common. Two children have been born attached to one another, or, whose bodies were joined in such a way, as they could not be separated, and which still, however, ate, drank, spoke, walked; and which, in a word, lived in this manner, happily enough, for several years.

In addition to what we before said of the weight of a child being generally from ten to fifteen pounds, we may add that the weight of an adult is a hundred and ten, a hundred and twenty, a hundred and thirty, a hundred and forty, or a hundred and fifty pounds, seldom more. There are instances of men who have gone greatly beyond this; such as, that of an Englishman, who was seen some years ago in Switzerland, and other places, and who weighed five hundred and fifty pounds.

In 1724, another Englishman died, at the age of twenty-nine years, that weighed five hundred and eighty pounds, and who was about ten feet in circumference round the body.

In 1750, a merchant died at the age of twenty-nine, who weighed five hundred and fifty-seven pounds, and who was so large that seven grown people could inclose themselves at once in his waistcoat.

As to the age at which mankind might arrive, it is not easy to determine with precision, as in the case of other animals. One person dies early, another late; one does not go beyond the age of infancy, another dies in childhood, a third at the age of manhood, a fourth arrives at old age, that is sixty, seventy, or eighty years; for it is seldom protracted till ninety; and as to a hundred, or beyond that period, scarcely one person in ten thousand arrives at it. In youth we are liable to be cut off by death, and, in advanced age, we cannot avoid it. It likewise happens but too frequently that men abridge their lives by their excesses, both in eating and drinking, by their indulgence of some particular passions ; in short, by a thousand shameful and destructive habits.

In the first age of the world, that is, from Adam till Noah, almost all men lived above nine hundred years.

Adam lived nine hundred and thirty, and Methusalem, the oldest person mentioned in history, arrived at the age of nine hundred and sixty-nine years. But, after the deluge, which took place in the time of Noah, the period of men's life began to shorten: Abraham died in his hundred and seventy-fifth year, and from the time of Moses, the common term of human life did not extend beyond a hundred and thirty. But in the journey which he made with the children of Israel into the land of Canaan, the life of man was already greatly contracted; so that himself, in the 9th psalm, at the 10th verse, ſays, That our life was no more than sixty and ten years, or at most four score ; and, if it exceeded this period, it was only sorrow and trouble.

THE KRAKEN.

We shall now mention what has been said of this enormous animal, which, if not fabulous, well deserves, from its singular form and immense bulk, to be placed apart from all others. I shall mention what has been said concerning it, by antient travellers, and among others, by Pontoppidan, in his history of Norway ; and it is truly a pity that no modern traveller worthy of credit has confirmed their relations.

The kraken, then, inhabits that part of the North Sea that is situated between Scotland, Norway, and Iceland. Its size is such, that, when it appears at the surface of the water, it resembles an island, so that the largest of the Greenland whales, compared with it, is but like a cat beside an elephant. It seems to be a kind of polypus, whose shape has a great resemblance to that of the spider, and which has a number of legs, arms, or antennæ, as thick as the trunks of trees. It remains at the bottom of the sea, and only rises to the surface once a year, and that with extreme slowness, in the summer, and in calm weather. When it comes to the surface, and shews part of its back, a kind of island is perceived of half a league's extent, covered with grass, mud, filth, fishes, and from which arise the arms or antennæ, like so many masts of ships that had been planted there. It is supposed that the kraken makes this voyage, from the bottom to the surface of the sea, only to take his annual repast, which continues to be digested through the whole of the rest of the year.

At the end of this time, and when he wishes to ascend, he unloads his belly, and his excrements are of such a nature, that they attract a prodigious quantity of fishes, which imagine themselves at perfect liberty in the vast opening of his mouth, and of which he swallows almost the whole. Having thus filled the no less amasing capacity of his stomach, he allows himself to fall down with the same gravity to the bottom, and applies himself to the great work of digestion, to recommence the same operation the following year.

Shall we believe this history, or not? All that we can say of it is, that such as have had the good luck to see distinctly the kraken, are right in believing it; and that others ought to wait till they have the testimony of their eyes, or something equivalent to this, which has never yet been the case.

THE

THE

MINERAL KINGDOM.

THIS third and last division of natural history, teaches us to distinguish those bodies that are destitute of life, of motion, and even of vegetation, and that are limited to a sort of external growth, such as stones, earths, salts, metals, demi-metals, &c.

To distinguish these substances with more precision, we shall divide them into seven classes, which shall be the subjects of so many chapters.

The first class contains earths. The second, stones. The third, salts. The fourth, bitumens. The fifth, demi-metals. The sixth, metals. And the seventh, different fossil or mineral substances.

FIRST CLASS.

EARTHS.

THESE are distinguished into five species; to wit, friable or pulverable earths; calcareous earths; gypseous earths; argillaceous earths; and vitrifiable earths.

1. Those are called friable or pulverable earths,

which are easily reduced to powder, as by simply rubbing between the fingers, which do not harden in the fire, or fuse, and are neither converted into lime, nor plaister, or gypsum. These characters agree with five kinds of earth, which are pure garden earth, or arable earth; marsh earth or turf; coloured earth; vegetable earth, and animal earth, that is, such as are obtained from decayed vegetables or animals.

Arable earth is black, soft, and fat, and absorbs water.

Marsh earth is likewise black, and is found in marshy grounds.

Coloured earths are either yellow, or blue, or green, or red, or brown: there are none of them pure, and several are also argillaceous, or obtain their colour from mixtures of certain metallick matters; to wit, the red from gold, or from iron, the blue and the green from copper, the yellow from iron. When separated from the foreign matters which they contain, and particularly from sand, they are useful in painting but not in dying. They get the name *ochres* in general, though the yellow earths be pretty frequently particularized under that name.

The vegetable earths are still imperfect earths, that are formed of rotten wood, and of all sorts of corrupted plants.

The animal earths are likewise formed of corrupted animal matters, and are imperfect too.

2. The name of calcareous earths are given to all those that are reduced by the action of fire to lime, such as *chalk*, *lac lunæ*, *marls*.

Chalk is a sort of hard white earth, or a soft white stone, composed of a pretty compact powder, and which adheres to other bodies when rubbed. Fine chalk is of a snowy white, and the coarse has a little of the yellow: it is used for drawing, and other purposes. It has the same name with the island of Crete (Creta), and it is supposed that the one is derived from the other, because, it is alleged, that this island, now called Candia, contains a great quantity of it, and that the first chalk that was brought to Europe came from thence. At present, chalk is common every where, and there is some that is black which is not so common.

Lac lunæ is a fine white calcareous earth, that is found in caverns, in the holes and chinks of rocks, as light as froth, and which is only a species of farina, or white powder. There is a kind found that is heavier, and which is called *stone marrow*. The lac lunæ has likewise got the name fossil farina, because poor people, have been simple enough, in times of scarcity, to make bread or pottage of it.

Marl is a compound of farinaceous and grosser particles, of different colours, and sometimes greasy, which is found in considerable quantity in several places, in meadows, and in fields, near springs, and in marshy grounds. It is used with advantage as a manure, according to the nature of the soil, and masons likewise employ it as a kind of cement.

3. *Gypseous* earths are such as are converted by the action of fire into a powder, which, on being soaked in water, acquires, in some hours, the hardness of stone, and affords what is called gypsum.

To this genus must be referred the *lamellated sparry earth*, composed of broad particles of a shining white, and rough to the touch.

4. *Argillaceous* earths are such as harden in

the fire; among this number are reckoned brick clay, pipe clay, boles, soapy earths, and tripoli.

Brick clay is tenaceous; and, mixed with a quantity of sand, it may be wrought, kneaded, and preserves any shape that ſhall be given to it, when it has been dried, and afterwards baked in the fire, which gives it the consistence of stone. There are both yellow and red; the first, which is the common potters earth, is not very fat, and is used as a mortar for building cottages; the other is fatter, and is the same from which tiles and bricks are made. *Pipe* and *potter's clay* is finer, purer, and likewise more tenaceous than brick clay; sometimes white, sometimes yellow, or red, black, grey, green, soft to the touch, easily wrought on the lath, becoming prodigiously hard in the fire. When very white, very pure, and without lime, it is the porcelain earth.—That which has less whiteness, and has a tint of the blue, serves for making pipes, and potters use both species; the finer it is, the better is the pottery. Generally it is done over with a kind of vitreous matter, which is called glazing: when white, the pottery is called delft; if not, they are called glazed vessels.

The *boles* are tenaceous and viscous, become soft in water, and harden in the fire; they are generally red, but some are likewise white, grey, blue, &c. There are different countries where the boles, that are more or less celebrated in medicine, are found; they are but little used at present, because their inefficacy is every day more and more discovered; nevertheless, they are still found in apothecaries shops, under the name of *terræ sigillatæ*, because they are brought to us in small parcels, with the impression of the sovereign's seal, whose country they come from, as a proof of their purity. Blood stone, or red chalk, or red earth, is likewise a species of bole.

Soapy earths are white, grey, or yellow, tenaceous, and grow soft in water. They are used for scouring woollen stuffs; when mixed with calcareous earth, they are called fuller's earth.

Tripolis are tenaceous, but not fat earths; they are grey, yellow, &c. Their fineness makes them be used for polishing substances; they likewise serve for other purposes. There are mines of them in France, as at Polenier in Bretagne, and Menat in Auvergne.

Fusible, or vitrifiable earths, are those which are vitrified by the action of fire; that is, which, instead of hardening in the fire, or being changed into lime and gypsum, are converted by it into a hard transparent substance, or into glass. Under this genus are comprehended dust-sand and stone-sand. The first is only a collection of small separate quartz grains; and if the grains be large, they form flints.

As to *stone-sand*, it consists of small whitish and yellowish particles, which are used for the composition of mortar, and for spreading upon walks. If the grains be large, and form stones, they serve for paving and for making glass. Both of them are impenetrable to water*.

Glass is made with sand, flints, quartz, gypsum, chalk, salt, saltpetre, lime and ashes. Bottles, vials, glasses, are blown; flat glass, or plate glass, is run. The whiteness and purity of the glass depends on that of the sand; the grey affords but a bad greenish glass. Any colour that a person chooses may likewise be given to it, by throwing into the mass, green, blue, yellow, red, &c. before a thing be blown or run. There are glasses that are cut and polished.

---

* Other naturalists make a particular class of sands, midway between earths and stones. As to vitrifiable earths we must believe that they are much more numerous. According to Bomare, all earths may be divided into two general classes; one the fusible earths, and the other the infusible.

The invention of glass is very antient, and seems to ascend to the remotest antiquity. In the time of Job, it was as dear as gold. The Phœnicians had many glass houses at Sidon, and likewise the Egyptians at Alexandria. It was not till after the conquest of this kingdom by the Romans, that glass was introduced into Italy. Soon after the birth of Jesus Christ, we find that great quantities of it were already manufactured in Spain, and in Gaul, that is, in France; so that in the third century we already had our windows furnished with panes of glass. By degrees the art of manufacturing it, spread through almost every other country.

SECOND CLASS

STONES.

THESE are substances of great hardness, that do not soften in water, and are not consumed in the fire, but are reduced by the violence of its action to glass or lime. There are likewise five species of stones distinguished, to wit, earthy stones, calcareous stones, gypseous stones, argillaceous stones, and vitrious, or fusible stones.

1. Earthy stones are in reality formed of pulverable earth, and there are two species of them, to wit, slates and basaltes.

Slates are nothing else but clay hardened sometimes to a greater, sometimes to a lesser degree, and of as different fineness; sometimes black, sometimes grey, sometimes blue; and that split into thin lamellæ. There is a slate for covering, and a slate for cutting; the first is used for the roofs of houses, instead of tiles, and its colour is of a greyish or deep blue. The other, which is harder is cut into tablets, and, when very fine, it is used as a sharping stone; it is of a black colour. Silver is sometimes found in slate. Between the lamellæ of a slate, we meet with beautiful black dendrites, which are representations sometimes of vegetables, sometimes of animals.

Basaltes are very remarkable stones, which generally have the figure of quadrangular columns, and are found scattered up and down in considerable quantities on the surface of the earth *.

2. *Calcareous stones*, that is, stones which are reduced to lime by fire, are lime-stone, marble, calcareous spar, tufa, stalactites, and stone-marl.

Lime-stone is generally greyish, and not susceptible of polish. It dissolves in water, ferments, grows warm, and afterwards when mixed with sand, acquires an extreme hardness. The softness of the stone admits of beautiful dendrites being frequently found in it, which represent sometimes shrubs, sometimes fishes, or shell animals.

Marble takes the finest polish, and presents the most beautiful colours. The most beautiful comes from Italy.

Calcareous spar is white, and is reduced to a silvery powder, fit for sprinkling on writing; or it may be calcined. The most beautiful calcareous spar likewise gets the name of crystal; it is sometimes quadrangular, sometimes hexagonal, sometimes with a great number of sides.

---

* Bomare gives rather a different account of what are called basaltes. He may be consulted upon this subject.

Tufa is rough to the touch, light, porous, and very proper for mixing with lime for mortar.

Stalactites are stony concretions, that are formed in caverns, mines, &c. by the filtration of water through the chinks of rocks. They are brilliant, and take all kinds of figures, as well as different beautiful colours.

Stone marl is formed in reality from the same species of earth indurated; it falls down, however, in the open air: it is made into lime.

3. *Gypseous stones* do not soften in water, but they are changed by fire into plaster or gypsum. The varieties are stone plaster, alabaster, and gypseous spar.

Stone plaster is white; and when baked, pulverised, moistened, it is made into all kinds of figures and statues. It is likewise used for the ceiling of apartments, where it is, at the same time, shaped into figures of the most exquisite beauty. This paste is likewise coloured with different ingredients, and made into what is called *stucco*; and the agreeable purposes to which this is applied has given rise to a particular set of artificers.

Alabaster is sometimes white, sometimes grey; it is likewise susceptible of polish, and is made into all kinds of vases and figures, even into tables. It is likewise converted into lime and glass. The most beautiful comes from Orient *.

Gypseous spar is white, grey, or black; the white is called *our lady's glass*, because, in convents, thin leaves of it are spread over the images, like glass: it is used in Russia in the windows of their houses, and is also used for the same purpose on board of ships, because this species of glass is less subject to be broken by the concussion occasioned by the discharge of artillery.

---

* According to Bomare, vitreous alabaster is not a real alabaster, but a true fusible spar.

4. *Argillaceous stones* do not soften in water, and harden in fire; these are soap-stone, asbestos, talc, mica, and the stone of Tripoli.

Soap-stone is fat and slippery, and feels like a piece of soap: it may be scraped, cut, turned, and polished. Under this genus are comprehended steatites, blood-stone, fat-stone, lapis ollaris, serpentine-stone, and gravel-stone.

Steatites, which signifies fat-stone in Greek, or Spanish chalk, or chalk of Brainçon (a village in France), is white and soft. It feels like tallow; there is likewise some black.

Blood-stone, likewise named red chalk, is of a red colour, which it imparts to other bodies by rubbing.

Fat-stone likewise feels greasy to the touch, but is semi-transparent and hard, and of different colours.

Lapis ollaris * is opaque and hard, of different colours, and like soap to the feel; it is made into all kinds of pottery, and thence comes its name.

Serpentine-stone is likewise a species of lapis ollaris, from which very pretty articles are fabricated: it is blackish, greenish, or spotted with black and red.

Gravel-stone, is so named from a property imputed to it of assuaging the pains in that complaint; it is transparent and hard, of a greenish blue colour, and comes from the Indies.

Asbestos, or *amianthus* †, or fossil lint, resembles rotten wood, of a greyish white, or greenish, or reddish. It is composed of threads that may be separated, spun, and fabricated into a texture, either on a loom or with the hand. To separate the threads, amianthus is put into warm water, which dissolves the gluten, after which the threads are separated with the fingers, are laid to steep seven days in water, and afterwards spread on a sieve, and laid in the sun to dry. When it is intended to be manufactured, it is dressed with cards, something like a rock of wool, and is spun, taking care to dip the fingers frequently in oil, to prevent blistering.

---

* In Bomare, all the stones in this article are *ollares*.

† According to Bomare, asbestos is a species of amianthus.

Talc is yellow, green, or white, hard and of all kinds of figures; it is used in making paint for the toilet.

Mica is formed of plates applied one to another; these are separated, and get the name of fossil glass of Russia or Muscovy.

Tripoli is grey or whitish, and pretty soft.

5. *Vitrifiable earths* do not soften in water; they give fire with steel, and may be converted into glass. Of this number, are quartz or flint, precious stones, crystal, horn-stone, fluor spar, free-stone, granite.

Quartz, is white, of all sorts of shapes, and breaks into shining angular pieces.

Precious stones, which their admirable colours, and their solidity, have placed in the first rank among the trinkets of opulence, are the diamond, the topaz, the chrysolith, the haycinth, the carbuncle, ruby, the spinel, the garnit, the amethyst, the sapphire, the opal, the beryl, and the emerald.

The *diamond* is considered as holding the first rank among the precious stones. It is of a beautiful white, and an admirable lustre, and as transparent as the most limpid water. The moſt beautiful come from the Levant and Brasil: these stones are very dear: a diamond of the size of a small lentil costs at least five or six crowns; and one not larger than a die for playing with, will cost above a hundred thousand. We must not omit here the singular property the diamond possesses, of resisting the hardest files and tools, and evaporating like water in the focus of a burning glass; an experiment made by Buffon and others.

The *topaz* is of a golden yellow, and of the most beautiful lustre, though there be likewise some of a pale yellow, and some brown. The most beautiful come from India; but there are some found in Bohemia and Silesia *.

The *chrysolith*, which signifies gold-stone, is of a greenish yellow; it is brought from the Levant, but is also found in Germany.

The *hyacinth* is of a reddish yellow, semi-transparent, and comes from the Indies. Some are found in Germany, but either of a bright, or of a dull spotted yellow.

Carbuncle is the name given to a species of ruby, which is of a blood red or fire colour. The true name of this is stone ruby-spinel †; formerly the name of carbuncle was given to all those stones which had the lustre of fire, among which were reckoned particularly the ruby and the garnit.

The *ruby* is of a beautiful transparent red, and holds the second rank among precious stones, yelding only to the diamond.

---

* According to Bomare, smoky topazes are only rock crystals coloured, fluor spars of lead, or quartz crystallized and coloured.

† This, according to Bomare, is the oriental ruby, which gets the name of carbuncle, on account of its deep red; and the spinel is of a bright weak red.

The *spinel*, or *balais*, is likewise a species of ruby, of a pale red, and almost the colour of flesh.

The *garnit* is of an obscure red; the large ones come from L'Orient, and the small are found in plenty in Bohemia.

The *amethyst* has a violet or reddish blue colour; the *sapphire*, a sky blue; the *opal*, a whitish blue; the *beryl*, a bluish grey; and the *emerald*, which is a most beautiful stone, is of a green colour.

Crystal has the appearance of a precious stone; it is found in pieces that have the shape of hexagonal columns, or pyramids *. The fine white crystal is called rock crystal, and the blackish, black crystal.

Horn-stone is not extremely hard, and has got this name from its imperfect colour and lustre. There are reckoned three sorts of it, to wit, common flint, agate, and jasper.

Common *flint* is well enough known from the use that is daily made of it with the steel and the musket.

The *agate* is sometimes of a reddish, sometimes of a yellowish white; that which is of a dull red is called *chalcedony;* that which is of a clear red, *carnelian;* that which is of a pale red, *sardoine;* lastly, that with streaks, or spots, of different colours, gets the name of *striated agate*, or *agate onyx*†.

Jasper is a stone that presents all the colours imaginable, and is not transparent.

Fluor-spar is either white, or any other colour, and melts easily in the fire: it is of all different shapes.

Free

---

* Bomare makes them much more diversified.

† Bomare names the agates quite differently.

Freestone is of two kinds, *whetstone* or *millstone*; the first is finer than the other.

Granit is a compound of hornstone, of quartz, and of sand.

THIRD CLASS.

SALTS.

THIS name is given to mineral substances that dissolve in water, and impress the tongue with a stronger or weaker taste. They dissolve in the fire, and smoke without burning.

Though salts be found in the earth, where they are formed in masses, they may, notwithstanding, be extracted by art from both vegetables and animals. This class is divided into three genera, that of acid, of alkaline, and of neutral salts.

1. Among acid salts, which have a sour astringent taste, are reckoned the muriatic acid, the sulphuric acid, and the nitrous acid.

Muriatic acid is obtained from sea-salt, by the addition of sulphuric acid, when this acid arises in the form of vapours, and is collected in bottles. Sulphuric acid is obtained by the combustion of sulphur in proper vessels.

The nitrous acid is obtained from nitre or saltpetre by distillation, after the addition of some sulphuric acid.

2. *Alkalies* have an acrid taste, a white colour, and melt in the fire; such are pot-ash, soda, the volatile alkali.

3. *The neutral salts* are the bitter salts, common salt, borax, nitre, sal ammoniac, &c.

The bitter salts, have a tetrahedral figure, a white colour, a bitter taste, melt in the fire, are obtained from mineral springs, and are employed in medicine as purgatives. Such are the English Epsom salt, that of Seidhutchz, and that of Egra: Glauber's wonderful salt is an artificial salt.

Nitre, or *Saltpetre*, is hexagonal, white, of a disagreeable taste, and is sometimes found upon walls situate in obscure moist places; sometimes it is obtained from heaps of rubbish and dunghills, which contain ashes, rags, and all kinds of rotten animal and vegetable matters.

Common salt, or *ordinary salt*, is white, and of a cubical figure. There are three kinds, sea-salt, rock-salt, and spring-salt; the first is obtained from sea-water, the last from certain salt-springs, and the second is found in rocks at a distance from the sea: There are large mines of this ſpecies.

Sal ammoniac and *borax* are of a pure white: The first is obtained from urine, and other animal substances; the second comes from a lake of Persia, whence it is brought into Europe, and is afterwards purified in Holland. Both of them are employed by such as work in metals, either for soldering, or for giving different colours to gold. Sal ammoniac is likewise used in medicine.

FOURTH CLASS.

BITUMENS.

These are conbustible substances, that emit, on exposure to heat, a very strong and disagreeable

able smell. They are sometimes of an oily nature and fluid, sometimes dry and solid.

Such as are fluid are called *mountain oils;* when limped, they are called *mountain balm,* or *balm of Babylon*: When brown or yellow, they are called *petroleum,* or *rock-oil.* When fluid bitumen proceeds from a spring, or is found on the surface of water, as happens in Persia, in India, in Italy, and elsewhere, it is called *earth-oil.*

The *solid bitumens* are amber, fosil pitch, coal, turf, and sulphur.

There are different kinds of *amber;* one species is of a greyish colour, and hence gets the name of *ambergris;* it gives out an agreeable flavour when burnt. That which is properly called *amber,* is yellow or white: It is solid and hard, capable of being cut, polished, turned, wrought, sometimes diaphanous, sometimes opaque. The best kind is white, and generally very pure and transparent. There are frequently found small insects inclosed in pieces of amber, and theſe are dearer. Some people give amber the name of agate, and likewise that of inflammable stone, because it burns like a candle. It likewise gives out a very agreeable odour. It is found of the best quality, and in greatest quantity, on the coasts of the Baltic, near Prussia; but some is likewise found in the German sea, and other places, though of an inferior quality.

It is dug from several mountains of Provence, and from several other places in Europe. With regard to the origin of amber, that question remains undecided among naturalists. It was at first believed to be a bitumen, hardened and thickened in some way or other; but that is a mistake. It was afterwards said to be a vegetable rosin, which, together with the trees which produced it, as pines, firs, cherry-trees, had fallen into the sea, and that the quantity daily increased by these accidents ; but this opinion is very uncertain *. A number of curious little things are made from jet and amber : There are vast collections of them at Cassel and at Dresden in Germany.

Fossil pitch, or *mountain pitch*, is black and solid : when soft, it gets the name of *pissasphaltum ;* if it be hard and shining, it is the *asphaltum*, or *bitumen* of *Judea*.

Pit-coal is black and heavy ; it makes an excellent fuel, particularly in forges, but emits an unpleasant odour. It is found in vast quantity in England ; there is likewise some in the Netherlands, in Bohemia, Germany, and other places.

Turf is used for the same purpose as coal. It is a compound of earth mixed with decayed vegetables, particularly moss, &c. It is of a greyish black, and is found in a number of places, in Germany, the Netherlands, &c. Its smell is likewise unpleasant.

Sulphur is yellow, citrine, red, burns readily, and during combustion gives out an insufferable odour. Sulphur is found native in mines,

---

* Our German author, M. Raff, is of opinion, that amber is a product of ants, in the same way as wax is of bees ; not that he thinks it is produced by all ants, but only by a particular species of red ants, that inhabit woods, where they collect the rosin of juniper-trees, to build, or cover their subterraneous abodes. This rosin, wrought by them, is found in several places, and is used in fumigations. It must be acknowledged, however, that this does not account for its being found in the Baltic particularly, both at present and formerly, in such vast quantity.

and it is likewise obtained from a particular mineral, called mineral sulphur. It is used for making gunpowder, cinnabar, for whitening clothes, and several other purposes; for instance, to make matches.

FIFTH CLASS.

SEMI-METALS.

THESE are minerals which have the appearance of metals, but are not malleable; that is, they break under the hammer, and become volatile in the fire. There is one of them naturally fluid, to wit, mercury or quicksilver. Though liquid, it does not stick like water to the bodies which it touches; it separates into little globules, and grows volatile in the fire. It is sometimes found native in the earth; sometimes it is separated from a certain ore, which, when red, is called *native cinnabar*, composed of a mixture of sulphur and mercury in the bowels of the earth. This cinnabar is used in painting, and for making sealing wax, by mixing it with rosin. As to mercury, it serves a great many purposes; among others, for making barometers and thermometers.

The solid semi-metals, which are more or less hard, are antimony, zink, calamine, bismuth, and arsenic.

Antimony is of a whitish colour, hard, and composed of sulphur, mixed with arsenical earth.

Zink is soft, of a white colour, burns when melted, and gives copper a yellow colour. It has the lustre of pewter, and pewterers make use of it to give this metal more lustre and solidity.

Calamine is an ore of zink (just as cinnabar is of mercury).

Bismuth is white, or reddish, and of a lamellated structure.

Arsenic is hard, of the colour of iron, a violent poison, and gives copper a white colour. Under this generic name, are comprehended, orpiment, cobalt, and *fish-flower ;* this last is nothing else than the soot that adheres to the walls of furnaces and forges where arsenic and cobalt are smelted; or else flowers of arsenic, that are found attached to the roof of mines of this semi-metal. *Orpiment* is yellow, like sulphur, weighty, and brittle: painters obtain from it a green colour, by mixing it with indigo, which is blue. *Cobalt* is grey and reddish, and resembles pieces of broken metal: a beautiful blue, called enamel blue, or azure blue, is obtained from it.

SIXTH CLASS.

METALS.

THESE are hard minerals, fusible, ductile, malleable, known by the names of gold, silver, tin, copper, lead, and iron.

They are found sometimes native, but more frequently mineralized with sulphur or arsenic; this mixture is what is particularly called *ore*. By combining two or more metals together, we obtain a new kind of metal; such are the factitious metals, called *bronze*, *brass*, &c.

Metals are divided into two classes; those that are noble, and those that are common. The first undergoes no alteration in the fire, except being fused, however long they may continue in it; these are gold and silver. The other four change their nature or appearance, after being exposed to it a certain time, longer or shorter.

Gold is very compact, tenaceous, of a yellow colour, and is sometimes found native, sometimes mineralized with different substances, from which it must be extracted. Native gold is likewise found in the beds of several rivers, and then it is called *washed gold*, or *river-gold*.

Silver is likewise very compact, very tenaceous, and of a white colour; it is wrought in every kind of way, and stands the fire without suffering any diminution. Silver is likewise found native; but it is generally in ores of different kinds, as the corneous silver-ore, &c.

Copper is a reddish sonorous metal, which, exposed to a moist atmosphere, or put into water, contracts a green downy matter, called *verdegris*, an extremely poisonous substance, which has already cost so many people their lives, by the imprudent use of copper vessels in kitchens. It is sometimes found native, sometimes in ores.

Iron is the hardest of metals, and is seldom found native; it dissipates insensibly in the fire; and may be converted therein into steel. *Steel* is fabricated from iron; thus none exists, either native or mineralized in the earth.

Loadstone is a species of iron ore (of which there is great variety), but poor, so that it is not wrought; it is a compound of iron and stone. This ore is remarkable for its singular quality of attracting iron, and of turning always one of its extremities to the north, when suspended at liberty; so that by this means we distinguish the two poles, the North and the South. These effects, and others peculiar to the loadstone, are attributed to a particular invisible fluid which penetrates it, and circulates around it from one pole to the other. It is curious to observe iron filings arrange themselves round a loadstone, and adhere to it. This magnetical force has been supposed to have some action upon animals; so that the loadstone has been used for the relief of different pains. There have likewise been told surprising accounts of the success attending this new method; so that the whole tribe of apothecaries have been threatened with instant ruin.

Tin is a metal whose brightness is easily tarnished, not hard, and pretty light, which easily fuses, and serves for making a vast number of utensils. Tin-ores get different names, according to their form; there is *grain-ore*, *stone-tin*, &c.

Lead has a grey or bluish colour; it is the softest of all metals, and also melts with the greatest ease. The ores from which it is obtained likewise get different names, as *lead-spar*, *lead-crystal*, &c.

As to the method used for extracting the metal from the ore, it is first broken into small pieces, and almost reduced to a dust or powder. This powder is thrown into tubs, or ditches, filled with water, where the useless parts are separated from the good ore. From thence the remaining mass is carried to the smelting-house, where it is thrown into a crucible upon a strong fire, where, by means of fusion, the metal is separated from the foreign bodies that had not been separated in the washing. But this first fusion is not sufficient; before gold, or silver, or copper, can be rendered pure, and proper for working, they must undergo several different fusions; so many the more, too, because silver and lead are frequently mixed together; and without this they could not be separated.

SEVENTH CLASS.

DIFFERENT FOSSIL SUBSTANCES.

THE chief of these that we mean to mention, to conclude our short account of the mineral kingdom, are the *petrifactions*, as the most curious of the whole. In reality, could you expect to find all kinds of matters metamorphosed, and converted into real stones; for instance, wood, the skeletons of men, quadrupeds, birds, and other animals, shells, insects, fishes, marine plants, and others? Nor would you any more have suspected that all these different substances are sometimes found inclosed in stone, or incrusted with it; at other times filled with metal, or bitumen; frequently buried almost entire among chalk, clay, or sand.

On observing these petrifactions, we must be satisfied, that the bodies which they represent, as well as the places where they are found, must formerly have been covered with the waters of the sea. These places, however, are frequently high mountains: it does not matter; the sea-animals, whose carcases we find interred or petrified, are too strong and convincing evidences of the abode of the waters even upon these mountains, whether their summit may have been elevated so as to form an island, or even that too may have been hidden under the surface of the sea.

The following are some of the names given to them. The petrifactions of animals are called *zoolithes*, and those of vegetables *phytolithes*. *Echinites* are petrifactions of bears; *cornua Ammonis* are petrifactions of shells, *conchites* of bivalve shells, &c.

Under the same class of petrifactions, without altogether confounding them with the preceding, are ranged stones that bear the impressions of plants or animals, whether they have really at some former period contained them, or that they have received the impression from contact at the formation of the stone. These stones are called *impressions*; and in these we observe resemblances of trees and animals, and sometimes even landskapes. When they resemble trees, they are called *dendrites*; and many of them are seen in slate. There are also *incrustations*, and this is the name by which we design substances covered with calcareous earth; for instance, moss, or any other substance.

F I N I S.

BRITISH MUSEUM
6 MAR 57